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Addresses.

THE CHOICE AND USE OF MEDICAL LITERATURE.*

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CHICAGO.

The choice and the use of medical literature depend first on what the physician tries to be; not on what he would like to be, not on what his ideal may be, but on what he thoughtfully, consistently, persistently strives to be.

KINDS OF PHYSICIANS.

Our day-dreams of attainment are much the same, but the daily walk of physicians varies greatly. Most of us have met a physician who may be called the family factotum. He hobnobs with fussy mothers and puttering fathers. He is greatly interested in grandma's cough, knows just how to wash the baby, has his special poultice, and can take off warts. Dropping in to ask about Aunt Em's backache, he stays an hour visiting with the folks. He is a gentle and kindly soul, but his mind is occupied with the trivialities of medicine and domestic chit-chat.

Then, there is our old friend who in winter airs his surgical deeds and medical acumen about the drug-store stove and in summer holds a like symposium on the shady side of the street. He knows a good cigar, is a pleasant gentleman and harmless in all things save only the practice of his profession.

We have heard of the affable society physician who dresses well, talks well, knows the best families, attends receptions and makes social calls. We know and respect the God-fearing church physician who teaches the Bible class, sings in the choir, gets together the pastor's salary and finances the church debt. The lodge physician, the sporting physician and the physician deep in politics are familiar figures. We know them all. They are of us, members of our honorable guild. With loyalty and affection we take them by the hand. They are good friends and good citizens; but really fine physicians—not one of them. And not one of them has any real use for good medical literature.

But there is another man—the man we would like to be: the capable man who knows his work and does it; the man up with the van, who can talk face to face with the great in our noble profession. He has enthusiastically striven or doggedly persisted until he is the wise, skillful physician who practices with no uncertain hand, but knows when he is right and knows where he is ignorant. To be what he is and do what he does means familiarity with what others have done and are doing. To this there is no exception. He reads. He selects his literature well and uses it wisely.

WISE SELECTION OF BOOKS.

The selection of our books is a task as delicate, a duty as significant as is the choice of remedies for our patients. Every book is a prescription for our mental self. And yet, who can deny that the clever book-agent puts thousands of volumes on our shelves? In this day and generation it is the physician's obligation not only to be able to recognize the good in medical literature, but to know the great and the safe among medical writers. A conscientious physician calls in consultation no unknown man, but, strange to relate, he will blindly follow an author of whom he knows nothing except that he has produced a book.

THE RÔLE OF THE TEXT-BOOK.

Another somewhat frequent professional indiscretion, to call it by no harsher name, is the good old student plan of sticking to a text-book. Progress means expansion. The more a man progresses the less prominent is the rôle of the text-book. It is necessary for babes, but not meat for strong men. No text-book physician is an A No. 1 man. The latter needs the treatise, the "system," the cyclopedia, and particularly the monograph.

THE MONOGRAPH.

Of all medical books the monograph is the best—and the worst. As a rule, it is the product of special interest and the wise employment of opportunity. In it we often find the rich harvest of many years of loving labor by a great mind. In all probability, the author has not only consulted the writings of others, but has acquired a sure judgment in weighing their merits. Unfortunately, sometimes he is an enthusiast without balance, a faddist, a man with a theory, a prejudiced observer, a dealer in sophistry. Then, if in addition he be a positive and clever writer he may do untold harm. I have now in mind an interesting, attractive book which in the last twelve years has led astray thousands of physicians, and I am sure that the next quarter of a century will not see rooted out the fallacies planted by its brilliant author. Why is this? Because thousands of well-meaning physicians bought the book without knowledge, read it without care, absorbed its tenets without proving, and promulgated its dicta without prudence.

DISCRIMINATION IN READING.

If he is to really profit by the precious time spent in reading, the physician must be able to read with discrimination. In medicine there is no such thing as an authority. The critical sense must be keen and ever alert. The reader must learn to be a judge, for the plea of every paragraph is to be adjudicated. And if he feels himself at fault, assistance is on every side.

* President's address, delivered before the thirtieth annual meeting of the Mississippi Valley Medical Association, at Cincinnati, Oct. 11, 1904.

I think there is no case in which those who know are more happy to lend a hand than in the selection and interpretation of medical writings.

MEDICAL JOURNALS.

And next, what of the journals? This is a big question and a hard one; one I approach with considerable feeling, but with no confidence. Nevertheless, I shall not attempt to dodge it; and since to advise is more human than to confess, to find fault more spontaneous than to praise, to say "don't" easier than to say "do," I venture first to advance a few of the "don'ts" in my mind. Be it understood, however, that these are suggestions purely tentative, as the expression of only one of a vast company, and that no remark is meant as criticism of editor, censure of publisher or condemnation of publication *per se*. All is addressed to the reader. I am not talking of foods, but of diet.

Don't admit to your presence a journal that is not perfectly straight and clean. As the first requisites of the good physician are conscientiousness and strictest integrity, so no journal is safe if it be not honest on every page. Humiliating as is the admission, we must confess that there are mercenary medical men writing subsidized articles for the benefit of tradesmen. We may not be able to stop the practice, but for the love of decency, let us drop the articles into the waste basket as soon as received and bar the journals from our table.

Just to illustrate how vigilant we must be, I may state that one medical screed has appeared in different journals as a straight advertisement, an editorial, an "original," a therapeutic hint, a news item and a clinical note. Again, of seven so-called original papers in one journal, four were obviously for ulterior purposes.

A thinly veiled deception is that of putting amidst scientific matter blatant advertising quoted from *Der Deutsche Medizinische Schurkenstreich* or *La Nation Médicale Trompeuse*. It is simply knavery with German or French sugar coating.

Another sort of debasing journal is the one that pretends, perhaps honestly, to help the physician to success by means other than pure professional excellence. A type of this kind of thing I recently found in an address to the graduating class of a medical school. I have no doubt the orator thought he was advising tact and inculcating practical methods for the management of patrons, the confusion of competitors and the increase of income. As a matter of fact, he was teaching those young men deception, subterfuge and meretricious connivance, to take the place of scientific knowledge and manly worth. Concerning the editor who spreads such pestilence, I have nothing to say. The physician who admits it to his library and his mind not only injures himself, but is recreant to his trust.

Don't indulge in yellow journals—for such there are—of deeper or fainter dye. The more harmless kinds merely present a sort of pseudoscientific vaudeville of striking oddities, rare curiosities, marvelous happenings and other side-show monstrosities of the medical world. All of this serves only to excite a passing interest, and makes no reader one whit better as scholar or practitioner. The worse kinds, under the cloak of medicine, pander to our appetite for the startling, the scandalous, even the salacious, and appeal to passion and prejudice. They lean strongly to sexual perversion and suggestive gossip. Behind the mask of independent thought they delight in strictures on those high in the profession and even indulge in dirty inuendo. They start hot discussions on ethics and foment controversies over personal rights, privileges and immunities. And this, God save the mark, is circulated as medical literature, because it is read by medical men.

Don't take a journal which is run as an advertising medium, and do not look at it if it is sent to you. Such publications are of two sorts. One kind is issued by some commercial gentleman to assist in selling his wares. In the guise of a scientific periodical, it is to all intents and purposes a sort of medical almanac, about as wholesome and edifying as the pamphlet for Bonesetter's bitters or the bulletin of Mother Udder's uterine uplifter. The other kind is conducted by a medical man with the dollar mark stamped on his aspirations. The good of the reader is no concern of his. He is after the money of advertisers, all of them. Original communications, editorials, excerpts, correspondence, everything, is arranged purely as a bait to induce the gullible to swallow the ads.

Don't read a journal that accepts abortive papers by undertone doctors. There are journals which systematically encourage that sort of thing. Unquestionably, to report cases and write down his opinions is good for any physician. But how about the reader? When the cases are incompletely studied, the writer ignorant or narrow, his conclusions lacking foundation and his judgment immature, the contribution is not only valueless—it is injurious. Smooth is the descent that leads to Avernus, and easy the downward road of this damning third-rate literature. It is light and easy reading, but begets self-satisfaction, blunts the critical sense, lulls ambition, dulls observation, stunts mental growth, and before he knows it the reader is found on a low plane of thought and practice—no higher than the twaddle he reads.

Don't waste time on journals abounding in short cuts. They are an abomination unto the mind, a snare for the unwary, and their name is legion. A hint or two will indicate the sort I mean.

Purporting to be practical and immediately helpful, some journals make a specialty of what may be called recipes for disease. And they are very alluring. Instead of learning all about pneumonia, its nature, course, variations and complications, what methods of treatment have been tried and abandoned and what has been the experience of those seeing hundreds of cases, it is so much easier to take some fellow's or some journal's statement that a peculiar poultice or ambitious alkaloid cures the disease. Stamped deep on my feelings is a paper on dyspepsia in a journal of great vogue. With no statement as to what dyspepsia may be, with no word as to diagnosis, with no allusion to pathology, no mention of gastroptosis, dilatation, hyperacidity or motor power, and no hint of test meal or examination of stomach contents, the author proceeded to advise the administration of seven different drugs. In spite of the multifarious remedies, such advice simplifies practice to a degree. It is no task simply to remember to give this tonic for appetite, that capsule for digestion, this granule for pain, those drops for nausea, one pill for constipation, the other for diarrhea, and the powder for flatulence. It is a short cut, but it leads to disaster.

In this same category belong the medical magazines that make a leader of questions and answers; a department modeled on the *Ladies' Fireside Guide*, where anxious inquirers go off at half-cock and the answers pop back as prompt and empty as echoes. A very little reflection will show not only the utter futility of

this kind of reading, but how it prevents development by curtailing wholesome mental effort.

Then there is the petty journal corresponding to the family factotum above mentioned. Its short cut is simply the avoidance of the great and profound in medicine. Ignoring such fundamental things as anatomy, physiology and pathology, oblivious alike to basic principles and the best of accumulated experience, it propagates a sort of family confab on the various superficialities of practice. How to bring out the eruption of measles; what is good for hiccough; the best liniment for sprains; these are cheerfully aired in numerous columns. What do you say to the parturient woman when she grows impatient? What is your favorite catarrh snuff? In the treatment of "threatened" appendicitis should aconite be given the first day and veratrum the second, or vice versa? On questions such as these, the editor and his writing readers expend great energy, priceless time and endless ink. With great zest the contributors, as Charles Lamb says, encourage each other in mediocrity. I carefully went through 115 pages of such a penny-wise, pound-foolish publication, and found just six pages of good stuff. And yet that journal has an enormous circulation—to the great renown of the publishers and the great discredit of the medical profession.

Don't pay much attention to columns of formulæ, notes on treatment, therapeutic hints, brief paragraphs on recent discoveries and items on new drugs. Pass over abstracts in which the process of condensation has squeezed the life out of the matter, and skip society reports so meager as to amount to mere personal mention. Most of such matter is garbled at the best, has no educational value, and even when a bit of it has virtue, is pretty sure to just slip through the otic tunnel—in one ear and out the other.

From the foregoing negatives a few positives may readily be inferred. As we are to buy only the best books, so let us take only high-class medical periodicals. And then let us read them well. If there are many poor journals, there is much poor reading done; reading that is casual, unsystematic, careless, superficial, cursory, profitless. We have three sources of information and inspiration: personal experience, personal contact with colleagues, and reading. The first may be limited, the second unsatisfactory, but the last offers to all the highest inspiration, and knowledge without end. Then let us read up and not down.

There is a certain comfortable ease in reading what we already understand. We may gratify our natural craving for approval by reveling in nice little papers which repeat what we have been saying for years. To tickle our vanity by reading papers so poor that they show the author to be more ignorant than ourselves is a pleasing process. Sometimes we feel luxuriously virtuous when reading a medical journal purely for entertainment and mental relaxation. None of these things should be. One and all they create a slovenly habit of mind. They are destructive of good method, and in the end incapacitate us for good work.

Here I must notice an objection or complaint that we have all heard and most of us have made: "I have no time to read." It is not true. The apportionment of time is not a matter of necessity, but of choice. What do I consider of the greater importance? What do I like and dislike? What do I choose to do? These are the determining questions. And in the modern physician's life there is precious little paramount to study. It pays to read. Beside the pleasure of knowledge and the power that knowledge gives, beside the gratifying sense of achievement and the satisfaction of progress toward a goal, it pays in dollars. In conversation with the busiest, the greatest and the most successful of our colleagues, I have often been astonished at the amount of reading they do and how they rely on it. Very, very often good reading makes the difference between $5 and $25 for an examination, between $50 and $500 for an operation.

And now, if I may be allowed four little hints as to the manner of reading, I shall have finished.

One excellent way to use medical literature is systematically to get up one subject well; to investigate it thoroughly; to trace its history and follow its development; to scrutinize diverse observations, review conflicting opinions and weigh different conclusions. Having once mastered the thing, it will be surprisingly easy to follow it through the succeeding years, for the annual increment to any given subject in medicine is astonishingly small. After one topic is exhausted another may be attacked, and so onward.

This method easily falls in with a second good one, namely, to read up fully on cases in hand. Note that I say "fully." Hastily to look up an ointment for eczema or to consult a text-book or two on the diagnosis of iritis may be one of the exigencies of practice; it is not reading. Likewise hunting up a remedy for an obscure case may possibly be a necessary makeshift, but generally it does the patient little good and the physician less. We should read for a perfect understanding of the case, which means a complete comprehension of the subject. No case can properly be considered alone. It is always in relation to variant cases under diverse circumstances. For no patient can there be a paragraph explanation and no recipe treatment.

Now, these two plans of reading naturally lead up to a third—reading to write. Of course, this plan is good only when the writer compels himself to produce really good stuff. This proviso fulfilled, I know of nothing more wholesome than the writing of papers and the reading of them where others may pass judgment. If the first two plans have been well carried out, it is reasonably certain that this one will not miscarry. The man who has excellently well worked up any subject or any case of any abnormal condition, is not only well prepared for the next one of the kind, but he is in a position to tell others something they do not know.

Pursuance of these three plans of reading will almost inevitably produce a most desirable habit, viz., the keeping of case records. The virtues of this practice are many. Two of them are that it stimulates reading and enhances its value. Accurate comparison of our experience with that of others not only serves to impress the facts, but ripens knowledge into wisdom.

The fourth and last suggestion for medical reading is really but a summary of the other three. It is that we acquire the mental attitude or aptitude or habit of reading for reproduction. To be a student is not enough. We must be effective students; student soldiers, if you please, preparing for action. There is a vast difference between the acquisition of knowledge as a mere accomplishment and as a means of accomplishment. It is well for us to regard our store of knowledge not as simply an interesting museum of Nature's wonders marvelous to contemplate, but rather as an armamentarium; an orderly array of goodly weapons ready for instant use.

THOUGHTS SUGGESTED BY A STUDY OF THE EYE INJURIES OF INDEPENDENCE DAY.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON OPHTHALMOLOGY, AT THE FIFTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT ATLANTIC CITY, JUNE 7-10, 1904.

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BALTIMORE.

In these days of progressive municipal hygiene, when laws are being constantly enacted to protect us from the results of ignorance which is so often criminal, I have thought it a suitable moment to call the attention of ophthalmologists to a condition which savors strongly of defective legislation, a condition which is peculiar to our country.[1]

It is not the first time by any means that the subject has been brought to public notice, for the medical journals throughout the land, and especially THE JOURNAL of this Association, to say nothing of the newspapers generally, have long since presented facts and figures which should convince us that the Fourth of July is a day of mourning to a large number of those who participate in its celebration and an unmitigated nuisance to thousands of others who come more or less indirectly within the zone of its activities.

Generally speaking, those who are faithful in observing this occasion will sooner or later be made to appreciate with some degree of force the truth of this statement, for while the unfortunates are drawn in large measure from the ranks of childhood, some of the most destructive injuries which I have seen were in individuals who had passed unscathed through the turmoil and heat of more than twenty Fourth of July celebrations. For example, there are to be seen in these records 15 cases where the ages ranged from 30 to 45 years, and each of these individuals was left to finish life with one eye. There were 52 others who had gone quite a distance into mature life, two of them being men of 60 years old, and eight women, two of whom were nearly 60, the other six being over 40, and each of this last group was badly injured.

This thing of getting wisdom is usually attended with some tribulation, and before we get it most of us have lost "the wild freshness of morning." Such an experience as that of the eight foolish virgins just mentioned certainly worketh wisdom.

The frequency of railroad accidents in this country has given rise to the opinion expressed in some quarters that we Americans are a violent people and that we have a disregard for human life, although it should be said in this connection that the statistics of Mr. Thompson[2] show that for the year ending June, 1903, railway travel in America, mile for mile at least, is safer than that of Great Britain, France and Germany. Be that as it may, our attitude toward the absolutely unnecessary mortality from fireworks on Independence Day is open to the severest criticism. Railroading or even traveling on railroads is essentially a somewhat hazardous business, but equally essential is it for the good of society, while the use of fireworks is at best only a so-called amusement, and one toward which all legislation has been hostile and for obvious reasons. The remarkable thing is why there should be a day on which this form of lawlessness is condoned.

How singular, not to say preposterous, is the spectacle of this country celebrating the anniversary of its independence at the expense of 466 lives, 10 persons totally blind, 95 eyes lost, and 500 other individuals maimed and disfigured. This is the record of July 4, 1903,[3] a record which eclipses in its death list the losses in killed on the American side in the battle of Bunker Hill.[4]

In comparing these numbers with the mortality from tuberculosis, it is interesting and suggestive to note that nearly five times as many persons were killed last Fourth of July by fireworks as have died from tuberculosis in Baltimore for any month during the past ten years, and more than twenty times as many as the average daily mortality from the same disease in the city of Greater New York with its population of over 3,000,000.

It should be remembered, too, that there must have been hundreds of other and minor casualties which were never reported, so that the complete record of last Independence Day will hold its own with that of any of the tragedies of this or other lands for 1903, with the additional sting of the folly and ingloriousness of it and of the fact that it is a story which we have heard with some complacency and regularity for many years. Such a thing is a reproach to any people.

I need hardly say that if the celebration of Independence Day had been attended in one community with a loss of 466 lives, that community would have risen up and wiped the holiday from its calendar. We see this power of public opinion illustrated in Norfolk, Va. Two years ago that community, exasperated beyond endurance by the mortality from the toy-cartridge pistol during the Christmas holidays, took active measures at once, and the toy-cartridge pistol was voted an intolerable nuisance and a severe penalty imposed for its sale. Fortunately, no such wholesale destruction has befallen any one section, for this record represents the tax levied on the nation for the license to use fireworks for one day of the year, and it is doubtful in the highest degree whether the significance of that day was understood by half of those whose names are to be found on the list of dead and injured. This sort of patriotism sounds like barbarism.

Thanks to the press, the wedge of reform has been

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1. A large portion of my original address appeared in the *Baltimore Sun*, June 27, in connection with a crusade started at that time against the "Fourth of July Nuisance." That part has been abbreviated in this version. It is interesting to note the success of the movement in Baltimore as compared with reports from other cities:

NEW YORK CITY.

New York Eye and Ear Infirmary	22 cases.
Manhattan Eye and Ear Hospital (N. Y.)	42 cases.
New York Ophthalmic and Aural Institute	5 cases.
Total	69 cases.

BOSTON.

Massachusetts Charitable Eye and Ear Infirmary	16 cases.

PHILADELPHIA.

Wills Eye Hospital	15 cases.

BALTIMORE.

Johns Hopkins Hospital	1 case.
Presbyterian Eye and Ear Hospital	0 cases.
Baltimore Eye and Ear Hospital	1 case.

The Presbyterian Eye and Ear Hospital, which has the largest clinic south of Philadelphia, shows a clean sheet for the first time in twenty years.

I thank the following gentlemen for help in getting together these statistics: Drs. John E. Weeks, Edgar S. Thomson and Arnold Knapp, of New York City; Drs. S. D. Risley and C. A. Oliver, of Philadelphia; Drs. Myles Standish and F. H. Verhoeff, of Boston, and finally, Drs. Davis and B. B. Browne, Jr., of Baltimore.

2. Railway World, Feb. 12, 1904.

3. THE JOURNAL A. M. A., Aug. 29, 1903.

4. The Americans lost 449 killed, The American Revolution, by John Fiske, vol. I, p. 139.

driven in a short way, and things now are in better shape in some respects than they were a few years ago. For example, on July 5 and 6, 1888, there were 16 cases of eye injury treated at the Presbyterian Eye and Ear Hospital, Baltimore. On the same days of 1897 there were 14 cases treated, and in the intervening years there was an average of 6 cases for each Independence Day. Now and again there has been an outbreak of what might almost be called an epidemic of this class of injuries. For instance, on July 4, 1898, we had a record at the Johns Hopkins Hospital of 14 cases. In 1899 there were 16 cases treated at the Presbyterian Hospital and in 1901 13 cases. It should be remembered, too, that every year a certain number of eyes are treated in other hospitals than in the ones mentioned, and, again, a certain number are treated by the various physicians throughout the city, in their private offices. The number, no doubt, would be multiplied many times if the record of every case could be reached.

I note that 84 cases of eye injury were treated at the New York Eye and Ear Infirmary on July 4, 5 and 6, 1902, and on the same days of last year 42 were treated. Comparisons are unnecessary to show the condition of affairs prior to 1902, for the records of this one year are sufficient to prove that this kind of lawlessness is still deeply rooted in the metropolis, and that it blossoms out with surprising freshness and vigor with each returning Independence Day.

I have collected 493 cases of eye injury caused by the explosion of fireworks July 4; 249 of these occurred in Baltimore, while the others have been obtained from the records of the New York Eye and Ear Infirmary, the Manhattan Eye and Ear Hospital, New York City, and the Massachusetts Charitable Eye and Ear Infirmary. Practically all of these accidents occurred within the last few years, that is to say, only recent records were consulted. The numbers would mount up into the thousands had earlier records been utilized.

I have already called attention to the fact that the majority of such injuries are to be found among the young, a fact which these records help to establish. Of the 493 cases, 357 were children, and 136 were 21 years and over. There were 3 cases where the child was 3 years old; 5 cases where the age was 4; 7 cases where the age was 5; 1 case where the child was 2½ years old, and an infant of 3 months. It is to be regretted that the records of these hospitals gave so little information as to the variety of fireworks which proved to be the most dangerous, but so far as this point was considered, I gathered enough to feel satisfied that one of the varieties of firecracker was generally responsible for the injury, particularly for the very serious ones. Skyrockets and Roman candles, however, were not found to be blameless by any means. In 110 cases the injury was to the right eye, and in 55 cases both eyes were injured. In the lists furnished by two of the hospitals, there was no mention made as to which eye was injured. The chief injury was one in which at the same time the lids, conjunctiva and cornea were peppered with grains of powder which was usually imbedded in these parts, and which injury we all know entails considerable suffering and frequently leaves permanent scars. Of these there were 269. Presumably most of these cases were discharged cured after being treated for a certain length of time, but it would have been interesting had it been possible to have followed up these cases months later to see if the eyes had regained their integrity. In 40 cases, however, the injury was so serious as to make it necessary to take out the eye in seven instances for fear of sympathetic trouble, while in the remaining 33 the vision was permanently impaired, either by traumatic cataract or by inflammatory changes in the deeper structures.

A study of these statistics shows that we have pretty much the same train of events as is seen in other matters which pertain to public safety. A long period of freedom from sickness and sudden death makes the memory hazy and begets the carelessness which sooner or later brings disaster. The apathy which had settled over Baltimore in the few years previous to 1899 and 1901 could only be shaken off by some such violent provocation as the outbreak in these two years, since which time we have had some falling off in the number of injuries, so far as the eye is concerned. Not only in Baltimore, but in all of our cities the law is distinctly hostile to the "harmful and pernicious practice of setting off fireworks in the streets." The law, though, to be a real boon must become aggressive and the axe must be laid to the root of the evil.

An amusement which is essentially associated with such danger to life and property becomes too serious a matter to be regarded as legitimate amusement, and should be classed at once with crime and disease; in other words, with the things with which every civilized community is waging a war of extermination.

Take this incident as illustrating what I mean by defective legislation: A number of young men were celebrating the day in the usual manner. A small boy espied a fuse sticking out of the pocket of one of the men. The temptation was irresistible, and unseen he lit the end of the fuse. The man's side was blown open and he died in two hours. This is not an exaggerated nor an isolated case, for 465 others were killed in practically the same way and on the same day throughout our land. A man of 34 was having a good time with his children on the night of the "Fourth." A large firecracker had failed to explode and he went up to investigate. The next morning he came to me with a rupture of the eyeball extending clear across the cornea at its upper part and with the iris protruding. The eyeball subsequently underwent atrophy. This, too, is not an exceptional case, for ten individuals were made blind in both eyes and ninety-five lost one eye each in practically the same way and on the same day in the United States. One can never say what a cannon cracker is going to do, and it stands high as a vain thing for safety.

The root of the evil lies principally in the sale of fireworks, and on the basis of these statistics an ordinance was recently introduced which makes the penalty for selling fireworks $50 instead of $2 (as the old law stands), and for setting them off in the streets not less than $10 nor more than $25. I am convinced from the opposition which has sprung up from those who sell that the law will be a substantial blow to their business. It would seem that these people are willing to run the risk of being caught and fined when the penalty is only $2, but fear to take the risk with a more severe penalty.

I have brought this matter before the Section because ophthalmologists probably see more of this class of injuries than other physicians; not that injuries to the eyes from exploding fireworks, although very frequent, are more frequent than burns and wounds of other parts of the body, but that this latter class of in-

juries are treated by or divided up among the great body of medical men, while eye injuries are usually seen by a limited few in the cities and towns. We are better able, then, to give effective testimony in a matter of this kind.

Usually when an ordinance is introduced, it is a simple matter to get permission to appear before the committee of the council and present one's arguments. This I shall do, and I will also have a representative from each of the eye hospitals to strengthen my hands. I think it advisable to have two or three surgeons who are well known in the community to present the question in its general surgical aspect. Most of our surgeons have been confronted with serious wounds resulting from the explosion of fireworks. The support or testimony of several general practitioners and hospital superintendents who can relate the very injurious effect of the noise on their patients, especially on those who have just undergone severe surgical operations, will be found most valuable.

I would suggest, too, that you incorporate in your statistics some of the facts in connection with fires. For the year ending December, 1903, we had about two fires a day; that is to say, we had a few over 750 alarms. Normally, then, this is about what might be expected annually in a city of the size of Baltimore. According to a statement of Fire Chief Horton,[5] there are usually between twenty and thirty fires on July 4. All of our cities pass through this kind of experience on Independence Day.

There is such a thing as the legitimate use of fireworks, but, to my mind, that means setting them off in a big park under the supervision of men who are trained for the purpose and are experienced in handling fireworks, the entire exhibition being given under a special permit from the city authorities, and I think it would pay our cities to make an annual appropriation for this purpose. I feel sure that there is a large element in all of our cities which would be glad to contribute every year to a fund of this character.

Evidence arrayed in this manner will be convincing to the public, and may probably bring forth fruit. I say probably, for no matter how urgent the need may be for new legislation in this matter, the banding together of the dealers in fireworks and the use of money may be expected to have considerable weight with the ordinary run of city councils, which are largely composed of men who set private gain above the public good and party above principle. But no matter what the outcome before the council, in any event present your evidence in the same manner before the police commissioners, for without the co-operation of the police the whole thing will prove a failure. The heads of the police department, if their sympathy be secured, can and will issue such orders as will give us a reasonable and peaceful Independence Day.

I offer these suggestions, hoping that they will at least serve to stimulate in the Section an interest in this question. There is scarcely a large city in this land which has not one or more representatives in this Section, and I am convinced that as ophthalmologists we can accomplish much toward lessening the fatalities of Independence Day.

Our communities look to us as physicians for knowledge in the things which pertain to public hygiene, and nearly every year witnesses some victory over ignorance at the hands of our great profession, our high calling which, I see, from these annual sessions (to paraphrase a quotation), "renews its strength, is mounting up with wings as an eagle runs and is not weary, walks and faints not."

5. Baltimore Sun, July 5, 1902, p. 10.

Original Articles.

SOME FURTHER OBSERVATION ON THE USE OF THE STEM PESSARY FOR SCANTY MENSTRUATION DYSMENORRHEA, INFANTILE UTERUS AND STERILITY.*

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DETROIT.

In a paper on the above subject last year, I called attention to the great value of the stem pessary for some of these intractable cases. While a general practitioner I think I had more trouble with cases of scanty and painful menstruation than any other cases of pelvic troubles. The inefficiency of medication and general hygienic rules we have all observed. These patients go from one physician to another. We have gradually been enabled to unravel the different questions involved, and are now able to relieve many cases by understanding the pathology and the causative factors. The complex symptoms produced by the many various pathologic conditions naturally require that a correct diagnosis must first be made. After eliminating all those cases caused by diseases of the tubes and ovaries, adhesions and displacements, there still remains a goodly number of cases of painful menstruation which are not relieved by ordinary local or constitutional treatment.

With advancing civilization and the work thrown on the brain at puberty by the intellectual requirements of to-day, we have found that many young girls at the age of puberty, on account of the studies they have, remain physically defective. It is too much work for nature. The body may even develop, but the nutrition is all used up in supplying the brain with the necessary nourishment and the pelvic organs are neglected, and the result is an infantile uterus, while menstruation is painful and often scanty. All the emmenagogue remedies usually recommended are absolutely of no avail. By stopping all studies, putting the young girl in the fresh air, and letting her live a normal life, with plenty of exercise, development of the uterus may still take place, if this is done in time. If this is neglected, however, until she is through with her school and college life, that is, until she is 18 or 20, the poorly developed uterus will generally remain.

Now, what are we to do in such a case? If we have a poorly developed muscle of the arm or the leg or the back, do we use aloes, myrrh, tansy, or pennyroyal, or, in fact, any other remedy? You would all laugh if anyone suggested such a line of treatment. No, you develop the muscle by exercise. A thorough system of gymnastics will restore and strengthen almost any muscle of the body. I started out with this idea. You must exercise the uterine muscles if you want to develop the uterus. It is well known that the uterus containing a foreign body will try to expel it. A constant contraction goes on, the muscles contract and

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relax, they exercise, so I have used the stem pessary, leaving it there for months and years, with wonderful results.

Now, we have another class of cases: The young girl with a bright mind, quick perception; learns easily and goes through school without the least trouble. Nature has no particular work at puberty. There are no long hours of study burning the midnight oil, but the girl learns her lessons, gets out in the fresh air, takes plenty of exercise, and Nature has no trouble at all in developing the pelvic organs. They become normal. The girl menstruates regularly and painlessly. She goes on that way for years. She becomes an intelligent worker, teacher, or something of that kind. Gradually, in the course of time, dysmenorrhea is noticed, perhaps only for an hour or two, but it gradually increases in severity. She is laid up for a day or two every month, and has trouble in following her vocation. If you will examine a girl like that you will find that the uterus is small. It is undergoing atrophy; the uterus not so much as the cervix. The cervix has become very much smaller, the canal is contracted, there is painful obstruction and pain from the lack of muscle, which has been superseded by connective tissue. The uterus will simply become small from the lack of exercise, just as any muscle of the body will from lack of exercise. That woman ought to be married, she ought to have children; then she would not have dysmenorrhea, but she has it now. What are you going to do here? Give her various remedies from guaiac to aloes? They will do no good. The uterus needs exercise. If she is examined by the ordinary physician, he finds the small cervix, and says it is stenosis and needs dilatation. He proceeds to do it. The next menstrual period she will feel better. The second time she begins to have trouble again, and in a little while she is as bad as she was before. Perhaps she has this repeated, but with the same result. What she needs is constant exercise of the uterine muscles. The stem pessary will fill the indication, and she must wear it for a long time—a year or two.

For this kind of cases the ovaries were removed formerly, and are to-day by inexperienced surgeons. The slightest little pain during menstruation is an excuse to remove the ovaries.

This method of treatment, I hope will save many. In ordinary stenosis, where there is a tendency to recontract, the use of the stem pessary for a few months will bring about a permanent cure. In cases of single flexion and version, the stem pessary or any other kind of pessary will generally relieve the condition. Cases of sterility will be relieved if there are no tubal or ovarian diseases.

Some of the most intractable cases are those of scanty menstruation in fleshy women. It seems to have a peculiar mental effect. They seem to worry a great deal about it. The stem in such cases generally brings on the normal flow. The stem increases the flow in some cases rather profusely, but, as a rule, that is desirable. The various nervous symptoms and disturbances we often find seem to quickly vanish after they have worn the pessary for a short time. There certainly are many reflex conditions, which we do not quite understand, that are caused by flexion, stenosis and dysmenorrhea, which will all disappear as soon as the uterine or pelvic trouble is relieved.

Just a few cases that may make clearer the point I am trying to make. I will not give you an elaborate history, but just a few salient points:

CASE 1.—Infantile uterus—Mrs. B., aged 27; dysmenorrhea since the beginning of menstruation; married six years; sterile. Stem pessary introduced Aug. 17, 1903. Menstruation regular and painless; working hard, and the stem still in place.

CASE 2.—Mrs. B., aged 31; amenorrhea and retroversion; had not menstruated for seven months; sterile. Stem pessary was introduced Sept. 10, 1903; menstruation regular since; still in place.

CASE 3.—Mrs. M., age 33; amenorrhea and sterile. Very fleshy; had not menstruated for nine months. Stem pessary introduced Oct. 31, 1903; still in place; menses regular since.

CASE 4.—Miss C., aged 20; menstruation painful; uterus small. Stem pessary introduced Oct. 27, 1903. Removed May 7, 1904. Menstruation became regular and painless as soon as stem was introduced.

CASE 5.—Mrs. H., aged 24; sterile five years. Stem pessary introduced Oct. 15, 1903. Removed Dec. 17, 1903. Menstruated last, Jan. 14, 1904; pregnant at present time.

CASE 6.—Mrs. O., aged 30; scanty, painful menstruation; uterus small; hysterical. In bed for two weeks; taken to the hospital and stem pessary introduced Feb. 6, 1903. In one week she left the hospital, able to do her work, and has been an entirely different person since. All the nervous symptoms disappeared; menstruation became regular. Pessary was removed May 22, 1904.

CONCLUSIONS.

In conclusion, I would say that:

Dysmenorrhea in young girls is often produced by infantile uteri, when it occurs after 30 in virgins, by premature atrophy of the uterus.

The uterus can only be developed by exercise. This is accomplished by the stem pessary, as the uterus contracts and tries to expel it.

Recurring stenosis or flexions are often cured by the stem pessary if kept in for six months or a year.

Scanty menstruation in fleshy women is wonderfully improved by the use of the stem pessary.

Amenorrhea caused by any of the above conditions, or sometimes without our ability to recognize the cause, is promptly relieved in the same manner.

As all the above conditions cause sterility, the latter is often cured by the introduction of a properly fitting stem. Any kind of stem pessary will do, but the hard rubber Chapman is the one used.

All pelvic diseases, ovarian or tubal, must be absolutely excluded. The stem is only used in disturbances caused by the uterus alone.

MEMBRANOUS ENDOMETRITIS.*

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The unsatisfactory results of all forms of treatment for membranous endometritis directed to the uterus, have been so commonly noted that it seems strange its pathology is still in doubt. So far as I know the idea that this condition may be a secondary trophic one has not been suggested. Within the past few months a number of cases coming under my care in close succession in which membranous casts, either partial or nearly complete, were among the symptoms noted, caused me to look carefully over my records for several years back. The first surprising thing I found was that in 42 cases on which I had operated for the removal of tubal and ovarian diseases, membranous casts

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accompanying painful menstruation were noted as a prominent symptom. The second thing found was that in 19 of the 42 cases the tubal or ovarian disease was unilateral. The third thing found was that in 37 of the 42 cases pelvic adhesions were noted.

I have, since that time, either seen or communicated with 17 of the 19 patients who were the subjects of unilateral trouble. Two of the patients I have not been able to find, although one of these in a letter a little over a year ago made the statement that she was entirely well (five years after operation). Of the 17 but one still has the membranous casts, and an examination a few weeks ago disclosed a hard and immovable mass at the side of the uterus; probably a pus tube, inasmuch as the operation performed was for the removal of a left-sided pus tube; the right tube, seemingly normal, was not removed.

The conditions found in these 42 cases were as follows: In 19 cases unilateral diseases of tubes and ovaries; in 23 cases bilateral; in 37 there were pelvic adhesions.

Of the 19 unilateral cases, 14 followed or appeared to have started with some one of the exanthemata.

Of the 23 bilateral, 19 appeared from the history to have started with scarlatina, measles, mumps, rheumatism or smallpox.

Of 5 unilateral cases, no definite history of childhood could be elicited, and in 4 of these pain and membranous casts were noted at first, and all subsequent menstruations; 3 had chorea at puberty.

Of 4 bilateral cases, no definite history could be elicited, but one had smallpox at 14, and one had chorea at pubescence.

Of the bilateral cases, 8 were tubercular, 3 having tubercular deposits in peritoneum. Of these 8 cases noted as tubercular, only 2 developed general tuberculosis subsequently.

Inasmuch as the bilateral cases can not be considered in a positive way, we have, then, but 19 cases which would seem to furnish positive clinical data, although the other 23 support the theory.

Of these 19 cases the conditions noted were prolapsed and adherent tube and ovary with sclerosis of ovary, 7; prolapsed tube and cystic ovary, with adhesions and obliterated tube with hydrosalpinx, 3; hydrosalpinx and dermoid ovary, 2; hydrosalpinx hematoma, 1; retroverted adherent uterus with adherent chronic salpingitis and chronic ovaritis, 4; ovarian cystoma and salpingitis, 2.

Miss M. L., aged 22. Menstruated first at 13.

History.—Menstruation free, not painful and regular. Health remained good until the age of 19, when she had smallpox. Did not menstruate again for four months, when menstruation was accompanied by severe pain and the passage of almost a complete cast of the uterus. From that time to the present menstruation has been irregular, painful and always accompanied by the passage of more or less complete casts of the uterus.

Examination.—Examination revealed a tender slightly movable mass on the left side, pressure on which caused pain, which she said is like that she suffers during menstruation.

Operation.—April 27, 1894. The hydrosalpinx and cystic ovary on the left side removed. The right tube and ovary were normal with the exception of a small sclerotic area at the outer portion of the ovary which was excised and the wound stitched over with fine silk.

Results.—Her recovery was perfect; menstruation became regular, free from pain and without any membrane. She has since married and now has two children. She tells me she has never suffered any menstrual pain or discomfort since her operation.

Mrs. H. B., aged 34. Menstruated first at 14. Regular, free from pain; health good.

History.—Married at 25. One child fifteen months later. Puerperium normal; health good again until three years ago, although no further pregnancy. Had severe attack of measles, followed by muscular rheumatism. Was sick ten weeks, during which time she did not menstruate. When menses reappeared suffered severely and flowed profusely. A few shreds of membrane were noticed. Since that menstruation has grown more painful, irregular and always accompanied by passage of membrane.

Examination.—Examination revealed a hard, sensitive, adherent mass to the right of the uterus.

Operation.—April 28, 1894. A thickened adherent fallopian tube and sclerotic ovary were removed from the right side, the tube being nearly an inch in diameter and very hard. The left tube and ovary were not adherent and apparently not sufficiently involved to justify their removal.

Results.—She recovered, but did not menstruate regularly for nearly seven months, although menstruation was accompanied by less pain than formerly and each time with less membrane. After this her menstruation became more regular, she became pregnant and was delivered of a child at term. When I last saw her she was well. About a year ago I had a letter from her in which she states she has no pain and considers herself well. Since that time I have lost trace of her.

Miss M. P. A., aged 28. First seen April 22, 1895. Menstruated first at 15.

History.—Had chorea for about three months previous to this and continued ten months after. First menstruation free from pain, lasting about four days and normal in quantity. (Statement by her mother). Second menstruation did not occur for seven months, when there was some premenstrual pain, which passed away in a few hours after flow started. Menstruation then became regular every twenty-eight days, flow lasting four days, no clots or shreds. When about 16½ years old had a severe attack of scarlatina. Had some kidney trouble with it, menstruated while desquamating, suffered very severely and passed a few small shreds of membrane. Since that time has always suffered severely, premenstrual pain chiefly on left side. The past year menstruation has been irregular, the pain more severe and the shreds of membrane larger, the last time almost a complete cast of the uterus was discharged.

Examination.—Examination revealed an adherent cystic mass behind uterus and low down.

Operation.—May 5, 1895. An adherent cystic ovary and small hydrosalpinx with the fimbriated end of the tube adherent to the ovary were removed from the left side low down in the cul-de-sac. The right tube and ovary were apparently normal.

Results.—During the first menstruation following the operation there were a few small shreds and clots, but comparatively little pain. The next and all subsequent menstrual periods have been free from pain and shreds. (This patient married in August, 1899, and is the mother now of two children, both girls.)

M. L., aged 23. Menstruated first at 13, free from pain and normal.

History.—Flow four and a half days, perfectly normal and free from pain for about a year, then had severe attack of parotiditis and what the doctor said was inflammation of the right ovary; was very sick for four weeks; did not menstruate while sick, nor for three weeks after. She then suffered very severely and had to go to bed and have hot applications; flow lasted eight or nine days. The next menstruation came on five weeks later after two days of very severe suffering. This time she passed several large pieces of membrane the first day and some smaller ones the second day of the flow. From that time until the present suffering has become more severe and flow is always accompanied by pieces of membrane.

Examination.—Examination showed a prolapsed, enlarged and tender right ovary in the cul-de-sac.

Operation.—Jan. 11, 1896. The right ovary and tube were prolapsed and adhered. The ovary was about as large as a hen's egg and of unusually firm consistence. The tube was much thickened and very hard. The left tube and ovary were apparently normal.

Results.—There was comparatively little relief from pain during the first menstruation, but each subsequent menstruation became less painful and with fewer shreds, until the fifth month following the operation, when there was no pain and no shreds. Since that time until her marriage, eighteen months ago, she has been absolutely free from all her old trouble. She became pregnant a short time after marriage and gave birth at term to a boy baby.

Mrs. E. G., aged 26. First seen Aug. 2, 1895. Childhood healthy.

History.—No sickness until 12 years old; had measles, and three months later scarlatina; very sick for six weeks; had peritonitis (?) mostly on left side, following scarlatina. Had three attacks, one in October, one in November and one in December. Menstruated first in December, 1881. "Was very sick, suffered severely for two days, when doctor injected something into my arm which eased the pain and caused the flow to start. The flow was very profuse and there were pieces of something which looked like pieces of thin skin." She has always suffered severely before flow starts and always had these pieces of membrane. "Last month there was a large piece almost as big as two fingers and several small pieces." Married at 23; never pregnant.

Examination.—Examination showed a hard, sensitive mass, firmly fixed on left side.

Operation.—Aug. 25, 1895. The left tube and ovary were firmly adherent. The uterus latero-flexed and the ovary cystic. Adhesions separated and left tube and ovary removed. The right tube and ovary were not much involved, a few adhesions were separated, a fine probe was passed into the tube to insure its patency. The ovary was fastened to broad ligament by fine silk suture and the wound closed.

Result.—Her recovery was without incident. The pain at menstruation was relieved. The membrane disappeared, but she still remained sterile.

Miss L. E., aged 24. First seen Sept. 6, 1896.

History.—Always perfectly healthy until at 17 had scarlatina followed by rheumatism; sick three months; had menstruation regularly from the thirteenth year until this sickness; did not menstruate while sick nor for a month after, then suffered with severe pain on right side and passed some shreds. Has always suffered since and always passed pieces of membrane.

Examination.—Examination showed a tender, movable cystic mass on right of uterus, very low down.

Operation.—Sept. 1, 1896. Right hydrosalpinx and sclerotic ovary removed.

Recovery.—Complete.

Miss A. L., aged 19. First seen March 9, 1897. Childhood healthy.

History.—Menstruated first at 17; suffered severely for two days prior to flow; flowed seven days; did not menstruate again for four months; suffered very severely again and passed large pieces of membrane, after which pain was relieved; has never menstruated more than six or seven times and has always had the same experience.

Examination.—Examination showed a mass on left side of irregular consistence, movable and not particularly sensitive. The diagnosis of ovarian dermoid was made.

Operation.—April 12, 1897. A non-adherent dermoid of left ovary about two and a half inches in diameter was removed.

Result.—Patient made an uninterrupted recovery and has since menstruated regularly, is free from pain and passes no shreds or casts.

Miss E. B., aged 19. First seen May 2, 1898. Childhood healthy.

History.—Menstruated first at 13. No pain; flowed four days; for five months menstruated regularly every twenty-eight days and flowed four days without pain. In December, 1891, went skating and fell through broken ice; had pneumonia; sick four weeks; did not menstruate during this time nor for three weeks after; then suffered only slight pain and flowed five days. In January, 1892, had scarlatina and peritonitis; did not menstruate until the first week in March, when suffering was severe, particularly on left side. First two days' flow scant, then large pieces of membrane were passed and flow became very free for five days. Has since that time been irregular, suffered severely and always passes pieces of membrane. For past four months has had tenderness in left groin; leucorrhea.

Examination.—Examination shows left ovary very hard and small; left tube can be felt as a hard ridge.

Operation.—May 17, 1898. Left ovary sclerotic and about the size of a lima bean; left tube hard, enlarged and constricted by three bands. The tube firmly adherent to broad ligament. Right ovary and tube healthy.

Result.—Three months after operation, no pain, no shreds and menstruation regular. Is now well.

Mrs. A. J., aged 31. First seen Sept. 11, 1898.

History.—Childhood history negative; when 15 years old she had scarlatina, measles and mumps in rapid succession. Did not menstruate until nearly 16; then suffered severely, passed pieces of membrane and flowed only one and a half days. Has never been regular, always suffered and always passed membrane. Has had peritonitis three times. Never pregnant, although married nine years, and never used any means to prevent conception.

Examination.—Cervix small; an ill-defined, hard and immovable mass to the left of the uterus, ovary and tube can not be made out; right side of pelvis apparently free from disease.

Operation.—Nov. 3, 1898. The left tube and ovary were densely adherent, several inches of small intestine adherent to left side of pelvis. Uterus retroverted and adherent. All adhesions separated, the left tube and ovary removed, pelvis flushed with salt solution, drainage inserted and wound closed.

Results.—For six months patient did not menstruate regularly, but had no pain, and passed no shreds after second month. Is now well and mother of one child.

Mrs. E. B., aged 28. First seen Dec. 2, 1898. Childhood healthy until 13; then she had scarlatina, followed by chorea.

History.—Menstruated first at 15; suffered very severely. Physician said she had inflammation of the left ovary; did not become regular; always suffered severely; flowed three days and always "passed pieces which looked like red skin." Was told marriage would cure her. Married at 19; never pregnant; has never yet been regular and suffered very severely; last two periods had to go to bed and physician gave her hypodermic.

Examination.—Cervix and uterus normal; a small cystic and very sensitive mass to left of uterus.

Operation.—Dec. 9, 1898. A small dermoid of left ovary with hydrosalpinx, moderately adherent, removed.

Result.—Patient recovered and has since been free from pain, shreds or casts.

Mrs. J. E. W., aged 24. First seen June 14, 1899. Childhood sickly. Had all children's diseases except scarlet fever before puberty.

History.—Menstruated first at 14, regular and normal. At 17 had scarlet fever; was very sick for seven weeks; had abscess on left side of neck. Menstruated while sick and suffered terribly. Has always suffered since. For a few months after, passed a few small pieces of membrane, then pieces became larger until lately they have been almost complete casts. Was married at 22. Pain worse and flow lasts ten days.

Examination.—Uterus retroverted and adherent; a hard, firmly adherent mass to left of uterus and low down behind the retroverted uterus which occupied Douglas' pouch.

Operation.—July 9, 1899. Uterus firmly adherent and retroverted. Left tube and ovary firmly adherent low down in pelvis behind the uterus. Adhesions separated, left tube and ovary removed.

Result.—Patient very poor and surroundings not conducive

to rapid recovery: for some months she continued to suffer some pain and pass a few shreds of membrane. In January, 1900, she became pregnant and gave birth to a child at term. Since that time menstruation is regular and normal in every particular. No pain; no membrane.

Miss A. K., aged 18. First seen Aug. 25, 1899. Was healthy until 13, when she had typhoid fever.

History.—Menstruated first at 14; regular, free from pain; flowed four days; had scarlet fever, followed by rheumatism, at 15; was sick over three months. Did not menstruate for five months, then was very sick and flowed a great deal for nearly two weeks. Did not menstruate again for six weeks. Suffered severely and passed pieces of something which physician told her mother was part of a growth which was interfering with menstruation. She was curetted and treated by electricity, but still passes those pieces. Pain mostly on right side.

Examination.—A hard, immovable mass was felt behind and to the right of the uterus.

Operation.—Sept. 2, 1899. Right ovary and tube with an adherent appendix bound down firmly low in the pelvis. Uterus retroverted and held down by adhesions. Tube and ovary removed. Left tube normal; left ovary partly cystic. The cysts split open and a portion of the ovary resected, a probe passed into the tube to insure patency and the wound closed.

Results.—She recovered without complications and has been free from pain and membrane ever since. She married two and a half years ago, but is apparently sterile.

Miss B. L., aged 21. Did not menstruate until 17.

History.—Had mumps at 12 and scarlet fever at 14. Was quite sick at 14 for over a year, then health improved. Probably, from her description, chlorosis. First menstruation very painful, but she had been injured in a runaway just a few days before and physician said that she had torn something inside. Was bloated very badly; passed large clots and pieces of something. Has never been regular, always suffered and has been curetted twice with no benefit.

Examination.—Uterus retroverted and adherent; a mass which is indistinctly cystic on left of uterus.

Operation was not performed until Oct. 15, 1900. A hematoma of ovary and adherent left hydrosalpinx were removed; adherent uterus freed. Abdomen and pelvis flushed and salt solution left in cavity.

Result.—Recovery complete. Pain relieved and membrane disappeared from mentrual discharge.

Mrs. H. W., aged 30. First seen June 29, 1901. Childhood healthy until 15, when she had chorea; was sick several months.

History.—Had scarlatina at 17, just after first menstruation; was quite sick for two months; had inflammation of the left ovary; did not menstruate for nearly a year then suffered severely and passed pieces of skin. Has always suffered and yet has been regular for past seven or eight years. Was married at 23. Took local treatment for over a year without relief; has been curetted three times; the last time was a little better at first menstruation but since that worse than before; never pregnant.

Examination.—A hard adherent mass to left of uterus; very sensitive.

Operation.—Feb. 5, 1901. An adherent sclerotic left ovary and thickened tube removed. Right ovary had a cyst in upper outer part, which was resected.

Result.—She recovered completely, has no pain and no membrane, but is still sterile.

Miss N. A., aged 23. Childhood healthy until 14.

History.—Menstruated first at 13. At 14 had typhoid fever. Health good until 19, when she had measles, and two months later had scarlet fever. Did not menstruate for two months, then suffered severely. Passed a few pieces of membrane. Has always been irregular and passed membrane. Past year growing worse every time.

Examination.—Right ovary and tube prolapsed and adherent.

Operation.—April 13, 1901. Right ovary cystic, tube adherent to side of uterus and coiled on itself. Enlarged and indurated.

Result.—Recovery was prompt and for two years she was free from pain and membrane. Since that she has married and moved to another state, but two years' freedom from the condition is sufficient to warant the supposition that the cure is complete.

Miss G. H., aged 22. First seen Sept. 1, 1901. German; can not get good history. Says she has pain in right side all the time and passes "pieces of fleisch" every time she menstruates.

Examination.—Hard mass to right of uterus; very sensitive; uterus retroverted.

Operation.—Sept. 16, 1901. An adherent tube and sclerotic ovary on right side, with the appendix adherent to the ovary, were removed.

Result.—She has since married and has a baby three or four months old.

Miss O. B., aged 29. First seen May 4, 1902.

History.—Suffering severely (was menstruating at this time). A complete cast of uterus was discharged. Said she had suffered and passed membrane ever since she had smallpox, four years ago. Had never suffered before and had never been sick until she had smallpox. In this case I advised curetting and curetted the uterus on May 12. In June she did not suffer, but in July was worse than before. The left ovary was small.

Operation.—She consented to oöphorectomy and was operated on August 9. A small indurated hard tube and sclerotic ovary were removed from left side. The right tube and ovary seemed to be normal and were left.

Result.—I was agreeably surprised in this case to get almost immediate and perfect relief both from the suffering and the membrane.

V. A., aged 26. Never strong; had all the diseases of childhood except mumps before puberty.

History.—Menstruated first at 12; normal. Regular until at 20 she had mumps. Suffered severely with pain low down on left side for several weeks and menstruated profusely two or three times. Suffering became worse each time and she always passed pieces of thin membrane, sometimes very large pieces.

Examination.—Left tube and ovary prolapsed slightly, adherent and very sensitive.

Operation.—July 14, 1902. Left ovary and tube adherent to side of uterus and to broad ligament; tube hard and enlarged. Ovary sclerotic. Adhesions all separated and tube and ovary removed.

Result.—Complete relief from pain and absence of membrane characterize her menses since.

Mrs. S. H., aged 31.

History.—Always healthy until two years ago; then had measles; since that has suffered severely. Has profuse leucorrhea. Menstruated two and a half days every three weeks. Suffers severely and passes pieces of membrane every time.

Examination.—A doughy mass on left of uterus, very sensitive; uterus retroverted.

Operation.—Sept. 20, 1902. A left pus tube and sclerotic ovary removed. Adhesions firm and vascular. Right ovary and tube apparently perfectly normal.

Result.—She was relieved of menstrual pain and also from the membrane for a few months, but both are now as severe as before operation. Examination a short time since shows what is in all probability a right pus tube. This is another instance in which an effort at conservatism has not proved to be conservative.

Mrs. W., aged 27.

History.—Had splendid health until after she had scarlet fever at age of 21. Had always been perfectly regular and free from pain since first menstruation at 12. Was married at 19 and had a child fourteen months later. No trouble. In November, 1898, had scarlet fever. Menstruated while desquamating, suffered severely and casts were passed. Physician said the scarlet fever had been in the womb and that it was

scaling just like the skin. Has suffered ever since. Always has some membrane, but lately passes large pieces.

Examination.—A hard, sensitive tube on left side with ovary very small and hard, low down in cul-de-sac.

Operation.—Jan. 17, 1903. A sclerotic ovary and indurated tube; firm adhesions were removed from left side.

Result.—Complete relief from all symptoms has resulted.

Since July, 1903, I have had 5 more cases in which membranous endometritis has been a prominent symptom, on which I have operated for the removal of unilateral disease, but sufficient time has not yet elapsed to make them of value in the present discussion.

In presenting these cases I have selected only those in which the symptoms of membranous casts was noted as a prominent feature, and which may, therefore, be taken as typical of the class of cases.

The number of cases of bilateral disease is larger than of unilateral, and in all of them the pain has been more aggravated and the membrane cast off in larger quantities. This, it seems to me, would, in a measure, support the theory of trophic change.

The argument may be offered that in these cases there was a primary infection of the uterine mucosa, and by extension the tubes and ovaries became involved.

This is not a sound argument for two reasons, viz.: First, several of these cases presented pathologic conditions of the tubes and ovaries in no way the result of infection, as in dermoids, hematoma and sclerosis of the ovary, and yet they were cured by extirpation of the diseased structures without any uterine treatment.

Second, in those cases which might be considered as an extension of infection from uterine mucosa to the tubes and ovaries, no form of treatment directed to the uterus is or has ever been of any benefit, probably because it can not relieve the tubal or ovarian condition, at the same time the fact that these cases were nearly all sequelæ of the exanthemata, would indicate that the primary trouble was probably glandular, hence the ovary was probably the first, the tube second, and the uterus last involved. There is a further corroborating fact to be added to this theory, viz.: In the cases in which the membranous casts were noted for the shortest time the tubes were less involved in proportion to ovarian involvement than in those of long standing, and the pelvic adhesions were less dense and fewer. This would seem to indicate that the disturbance of circulation and innervation by intrapelvic adhesions and diseases of tubes and ovaries play a very important part in the pathology of this condition.

I can not arbitrarily state that the pathology of this condition is proved to be a trophic change wrought in the uterine mucosa by tubal and ovarian disease and by inflammatory products in the pelvis, but that it is always an indication of disease beyond the uterus as a primary factor, I believe. It may be asked if pelvic adhesions, tubal disease or ovarian disease are the cause of membranous endometritis, why we do not always find it in these conditions? Again, I wish to emphasize that in practically all of these cases the pelvic trouble seems in some way to be connected with the exanthemata, although not in all can the indications to this effect be said to be positive, notably, the dermoid cases. And yet each of these had scarlatina with some abdominal symptoms at adolescence or soon after. This renders the part played by the dermoids doubtful, and suggests a possible scarlatinal infection of the ovary and tube as the real primary factor.

Nineteen cases are not enough, I know, to determine positively the pathology of any condition, but 19 cases of unilateral diseases, supported by 23 cases of bilateral diseases, in which this symptom has been a prominent feature, would seem to me to warrant bringing this subject before you for discussion.

CONCLUSIONS.

When in the cases of unilateral disease of the tubes and ovaries, ablation of the diseased structures has been followed by complete relief in all cases from a symptom which curetting, local treatment, electricity and constitutional treatment have failed to relieve, it would seemingly warrant the following deductions:

1. Membranous endometritis is probably a condition due to trophic changes in the endometrium secondary to some intrapelvic disease.

2. This intrapelvic disease often is unilateral.

3. It is probably always unilateral in the beginning, although this remains to be proved.

4. The fact that all local methods of treatment of the uterus have failed to relieve the condition, together with the foregoing facts, would seem to warrant removal of the tubes and ovaries on one or both sides when shreds or casts are a part of painful menstruation.

5. The fact that nearly half of these cases were unilateral, although all of them had suffered for years, would warrant the hope of saving the possibility of maternity in all cases given early operation.

6. That many, if not all, the cases of membranous endometritis are due to ovarian and tubal disease developing as a complication or a sequela to the exanthemata.

7. This being true, the strictest attention should be given those structures during the exanthemata, and the slightest indication of trouble should be promptly dealt with.

8. Early attention may often save one tube and ovary where neglect will sacrifice both.

9. That in all cases, no matter what age, in which membrane is cast off during menstruation, a thorough pelvic examination should be made

10. The importance of a thorough case history in all cases of menstrual pain should be emphasized.

11. That conditions of tubes and ovaries not inflammatory and not due to any form of infection may possibly cause this symptom.

DISCUSSION.

DR. L. H. DUNNING, Indianapolis, has had membrane brought to him which dissolved in an alkaline solution, showing that it was blood and not membrane. He considers Dr. Lawrence's idea of the etiology of this condition entirely new.

DR. F. F. LAWRENCE, in reply to questions, stated that he had seen the membranes in all these cases and that most specimens were examined microscopically.

DR. CHARLES L. BONIFIELD, Cincinnati, Ohio, said that he has seen not more than three cases in eighteen years of practice. Dr. Ramey some years ago reported two cases; they were mother and daughter. The mother developed membranous dysmenorrhea after she had given birth to her children. Dr. Ramey succeeded in curing her by one or two curettages, followed by the application of acetic acid to the endometrium. Her daughter developed the disease soon after she began to menstruate and was cured by the same treatment. There are cases in which no disease of the appendages will account for the trouble.

DR. JOHN M. FISHER, Philadelphia, has seen only two cases of membranous dysmenorrhea. He said that Dr. Lawrence's experience has been an extraordinary one, so far as the number of cases is concerned. We may be lax in our examinations, however. In the two cases Dr. Fisher saw the symptoms were so pronounced that on investigation a complete cast of the

uterus was found at each menstruation. The mere discharge of shreds from the uterus during menstruation with pain in a given case can not be looked on as membranous dysmenorrhea.

DR. L. H. DUNNING said that one of the most severe cases he ever saw occurred in a woman from whom he had removed bilateral pus tubes and both ovaries. She menstruated for two years afterward and had membranous dysmenorrhea.

DR. F. F. LAWRENCE said that in the last few years he has made it a rule in every case where shreds or casts were passed, whether partial or complete, to turn them over to the pathologist for examination. So far nothing has been shown by these examinations on which we can hang anything of practical value in the therapeutics of the condition. In nearly all the cases there was a low form of degeneration of the epithelial cells, with an increase in the connective tissue stroma, dipping down into the deeper layers of the mucous membrane, as in chronic atrophic endometritis. The term membranous dysmenorrhea means nothing. It should be called membranous endometritis. As soon as a woman begins to cast off shreds of membrane and suffers painful menstruation he believes it is a case of membranous endometritis. It has occurred to him that this condition has an intrapelvic origin. It is possible that by following out this matter in detail we may find a satisfactory pathologic basis and possibly we may be able to tell our patients positively that we can cure them.

ADHERENT UTERUS AS A COMPLICATION OF LABOR, CITING TWO CASES.*

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PHILADELPHIA.

The causes of adherent uterus are multiple, and as a complication of pregnancy and labor give rise to various results, which can not be detailed in a paper of this character with a subject of such wide application.

We do not presume, therefore, to do more than to present a few facts as they appear to the obstetrician, reporting the two cases typical of adherent uteri complicating pregnancy and labor under entirely different circumstances.

Viewing the situation from an obstetric standpoint, the advancement in the science of surgery, while marvelous, has not yet reached that degree of perfection whereby the discomforts of woman, by reason of her sex, are satisfactorily alleviated to the best advantage during her period of propagation.

While correction of the abnormal deviations of the uterus belongs especially to the gynecologist, the results of reposition and fixation by the various methods of operative procedure, as well as by inflammatory adhesions when pregnancy follows, are met face to face by the obstetrician.

It is in the conduct of pregnancy and labor, thus complicated, that the relative results of the various methods of correcting uterine displacements during the child-bearing period can be proven, and one can only arrive at definite conclusions as to the best and most appropriate course to pursue in correcting such displacements by a knowledge of the test of pregnancy and labor with fixed or adherent uterus, remembering that of those requiring operative interference, the child-bearing women are largely in the majority.

The various operations for retrodisplacements and procedentiæ have their good points and their strong advocates, but to operate for the purpose of restoring comfort and health, without due regard for her future ability to propagate safely, is one thing, while to satisfactorily and permanently fix the uterus, with the positive assurance that a future pregnancy will not jeopardize the life of the individual, is quite another thing. In other words, the most positive methods of restoring and permanently supporting the uterus are often the most dangerous in the event of a future pregnancy.

From my own personal observation and from information obtained from other clinicians, I have become convinced:

First.—That the round ligament operations have little, if any, effect on future pregnancies or labor, but that subsequent pregnancies very frequently defeat the object of the previous operation by reason of the relaxation and elongation of the ligaments. The Alexander method, for instance, while safe under all circumstances, and most admirable for selective cases, as unmarried women with no prospects of matrimony, but failing or yielding under the test of pregnancy, the subject in a large percentage of cases must be subjected to a second operation or continue in life with a recurrence of the original malady. The results of the Montgomery subperitoneal operation, whereby he attacks the strongest portion of the round ligament, buttonholing the peritoneum, are awaited with a great deal of interest. This, we believe, can have but little or no effect on future pregnancies, nor will pregnancy be so liable to defeat the object of the operation.

Second.—That the results of the simple peritoneal suspension of the uterus are often futile and dangerous because the peritoneum is too thin, weak and yielding to support a gravid uterus, and is liable to rupture during retching and vomiting following etherization. Post-operative accidents of this character are on record, and I doubt not that there are many not recorded. I have purposely refrained from depending on statistics from medical literature, since the profession is deprived of full and accurate knowledge on this line, failures, accidents and deaths not being reported in proportion to the successes. Further, I question whether the inexperienced, or operator of medium experience, is not oftentimes lured into the methods of operating by unfair reports that appear in literature uncondemned, which are almost or quite irrational.

Third.—That the ventral fixation, after the usual technic, while one of the best, so far as supporting the uterus is concerned, is unjustifiable before the menopause, except under certain very rare circumstances. I can not conceive of a more embarrassing position for the obstetrician, nor a more critical condition for the pregnant woman who has proceeded to term with the fundus of her uterus firmly adherent to the anterior abdominal wall, the cervix drawn high in the pelvis posteriorly, perhaps near the brim, the posterior wall as thin as paper, in danger of rupturing at any moment under uterine contractions or artificial manipulation; or a firmly adherent uterus that has not been permitted to rise out of the pelvis, giving rise to a variety of symptoms jeopardizing the life of the individual.

If the operator could have the positive assurance that abdominal suppuration would not follow his fixation operation and that the bands of adhesions would form on the suture lines, allowing freedom and mobility of the uterus, ability to rise and expand symmetrically during the enlargement of pregnancy, under which circumstances labor would not be seriously complicated.

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* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

ventrofixation might be regarded as one of the most satisfactory operations for retrodisplacements of the uterus at any period of life. On the other hand, if the bands of adhesions do form, and are sufficiently long to allow the necessary freedom and mobility in pregnancy, they are too long to be of any value in supporting the uterus after it has been emptied at term. Since we have not this assurance, I do not regard the operation justifiable during the child-bearing age, except under certain favorable circumstances.

The justo-minor pelvis, with a short conjugate diameter of the inlet, is certainly a contraindication for fixation or suspension after the usual method. Again, the retrodisplaced uterus or the simple procedentiæ are invariably accompanied by hypertrophied and elongated cervices, especially of the anterior lip, which do not retract nor become utilized in the enlargement of pregnancy, if the uterus is markedly anteflexed and adherent; so that I regard as an essential counterpart of the ventral fixation or ventral suspension, the amputation of the hypertrophied cervix, and a goodly portion of the anterior lip, thereby overcoming reasonably well the greatest resistance in a labor of this character.

The following clinical history of a case recently admitted to the Samaritan Hospital illustrates the favorable circumstances under which we think the ventrofixation may be the selective operation.

This patient had, it will be noted, a justo-major pelvis and a previously amputated cervix:

Age 34 years. Married twelve years. Her first child stillborn ten years ago. Her second eight years ago after a normal labor. A year later her left ovary was removed; pathologic condition not known. About a year later still, she miscarried at six months, for which her uterus was curetted. Three years ago her third child was born after a normal labor. Thirteen months before the labor here referred to, the following operations were performed on her: curettement, perineorrhaphy, amputation of the cervix and ventral suspension. The abdominal wound suppurated, so that the fundus became firmly bound to the anterior abdominal wall, resulting in ventral fixation. For two weeks before being admitted to the hospital she suffered great pain in the lower part of her chest and somewhat in the abdomen. She was under the impression that she had pleurisy and was treated for it. Just prior to admittance she had a moderately severe convulsion with loss of consciousness. Examination showed the uterus to be firmly adherent to the anterior abdominal wall, and instead of a regular cervix a narrow ring, very high in the pelvis, brought within reach of the examining finger with the greatest difficulty; a vagina a little smaller than normal, compared with the size of her pelvis and a firm pelvic floor. External pelvic measurements: interspinous, 26 cm.; intercrestal, 30 cm.; bitrochanteric, 34 cm.; external conjugate, 26 cm. Urinalysis showed a large amount of albumin, many pus cells and a few granular casts. Position L. O. A. Fetal heart sounds heard.

She continued to have great pains referred mainly to her chest, constant in character but not in any respect resembling labor pains. Thirty-six hours later, after a second examination, at which time slight dilatation was produced, her pains became regular in character but still referred to her chest. In three hours the membranes ruptured and the child was born in half an hour by the natural forces. The child was well formed, weighing nine and one-half pounds, and apparently healthy. The patient made a rapid and uncomplicated recovery.

This patient came to us with the statement that her physician could not find her womb, and it was with the greatest difficulty that her miniature os could be brought within reach and slightly dilated. The rapid spontaneous dilatation thereafter, the speedy expulsion and absence of the characteristic pains could only be accounted for by the large pelvis and previous amputation of the cervix. The rigid close perineum only prevented a precipitate labor.

Calculations taken from the external conjugate (26 cm.) gave her a true conjugate of at least 16 cm. and in every respect the pelvis was roomy.

Equal contraction of the uterus in labor on all sides is absolutely essential to produce equal relaxation and dilatation of the cervix. This we do not ordinarily get in labor with an adherent uterus. The anterior wall does not contract regularly, because it has not been permitted to properly expand and become regularly utilized in the enlargement of pregnancy, has not the opposing force, and is held by the adhesions, while the posterior wall is thin, weak, overdistended and can not contract.

This inequality can be reasonably well compensated for, by the previous amputation of the cervix, particularly the anterior lip, which does not seem to increase the tendency to laceration. If the subject quoted had not had a large pelvis and the cervix amputated previously, I doubt if anything short of cesarean section would have given her a living child weighing 9½ pounds.

Fourth.—That in vaginofixation, which I believe is never intentionally done until after the menopause, our resources are limited, and it is hazardous and a waste of time not to terminate pregnancy by the induction of premature labor, or even immature labor if necessary, sacrificing the life of the child, as soon as it is clearly demonstrated that the uterus is incarcerated within the pelvis, or at the first evidence of pernicious vomiting, as the following brief clinical history will illustrate:

Mrs. C., white, aged 26 years; married three years; no children; miscarried two years previously, followed by pelvic inflammation, presumably parametritis, which was undoubtedly the cause of the fixation. Patient came to us after having been ill ten days. Weak, emaciated, unable to retain nourishment, vomiting incessantly and with intestinal obstruction, pulse small and rapid, vomit consisted of greenish fluid, including mucus, bile and finally some blood and fecal matter. Pains in lower abdomen were constant. The intestinal obstruction was relieved with high rectal enema, but had no effect on the vomiting or pains.

Examination found the uterus firmly fixed in the pelvis, adherent along the median line anterior to the bladder and above the bladder. The fixation was such that the mechanical intestinal obstruction and pernicious vomiting could readily be accounted for. The bladder protruded in the shape of a cystocele; the urine contained pus. Head in utero was pressing firmly on the perineal floor in the L. O. A. position. Membranes could be palpated within the os with one finger, but notwithstanding the constant pains the cervix did not further dilate. When admitted positive evidence of a living child existed at about the seventh month of gestation.

Having tried for three days to improve her condition with high nutrient enemas and rectal medication, at the expiration of which time the fetal heart sounds and quickening ceased, I dilated manually and delivered instrumentally under partial anesthesia, receiving no assistance from uterine contractions, terminating labor in one hour.

The external measurements were below normal: Interspinous, 23.75 cm.; intercrestal, 24.74 cm.; bitrochanteric, 30 cm.; external conjugate, 18.25 cm.

Following the completion of labor, postpartum hemorrhage resulted from uterine inertia, patient becoming pulseless. Strychnia and ergot were administered hypodermically, uterus firmly grasped and an intrauterine douche of normal saline solution, temperature 115 degrees F., given; uterus packed with sterile gauze wrung out of sterile acetic acid, which was removed at the expiration of four hours. Patient speedily recovered. The uterus at no time following delivery was more than a finger's breadth above the pubes.

Subsequent examination on the tenth day found the uterus in anteflexion, of normal size for that period, firmly fixed anteriorly with no cystocele nor any vesical irritation. No surgeon could have done a more perfect vaginal fixation than here existed, nor given better results so far as her comfort was concerned, barring the risk and danger of pregnancy.

In conducting a labor thus complicated, whether the uterus is adherent anteriorly or posteriorly, careful speedy manual dilatation is the most satisfactory method in our hands, since the uterus is very low and the dilatation can be readily accomplished under the eye.

The conduct of the complicated pregnancy and labor which concerns us most, however, is that with the adherent uterus following ventral fixation. We can not lose sight of the fact that the suspension after the usual technic is liable to become fixation and, although many well-known operators have abandoned this operation, there are still many women with ventral fixation yet to become pregnant. Shall she be allowed to proceed to term? This is still a mooted question, and depends wholly on the following factors: The degree of mobility, size of the pelvis, thickness and rigidity of the lower segment of the anterior wall of the uterus and cervix. Each individual should be a law unto herself. If the cervix, by repeated examinations at regular intervals, is found to be markedly rising posteriorly, the uterus immobile and the lower segment of the anterior wall, including the cervix, not becoming utilized in the enlargement, I regard it as unwise to allow her to proceed, unless when an offspring is especially desired and she prefers to accept the risk, with full knowledge of the gravity of labor under such circumstances, including cesarean section.

Of the two methods of dealing with this complication when the condition is not recognized until after the ascent of the cervix, with a thick rigid os, it is my impression that the modern cesarean section by an experienced operator is equally as safe as podalic version, or when too great traction force is necessary to cause the descent of the presenting part into the pelvis, which is liable to rupture the uterus on the posterior surface.

CONCLUSIONS.

My conclusions in reference to the whole matter, from a varied experience, are as follows (which, by the way, coincide with a report from Dr. Oui of Lille, very recently, after careful investigation), viz.: That in hysteropexy, with slightly different technic from that originally practiced, this complication may be obviated; not the suspension to the peritoneum, but to the anterior abdominal wall with two sutures in the anterior surface of the uterus opposite or a little below the insertion of the tubes, instead of in the fundus on the median line or posterior to it, as in the ordinary ventral fixation.

The advantages of a high suspension in this way are: anteflexion; support; ability of the uterus to expand more symmetrically during pregnancy and contract regularly during labor; short bands of adhesion are just as liable to form; does not seriously complicate pregnancy, and, if the bands do not form, the pendulous yielding abdomen and enlargement of the uterus to that point are fairly well proportioned, and when the uterus is emptied it symmetrically contracts and retracts. Inertia is not a factor, and the organ is still supported.

Contrasted with this the disadvantages of the ventral fixation are: Extreme anteflexion, particularly if the bands of adhesions are short or do not form; frequently vesical irritation; in pregnancy, inability of the uterus to expand symmetrically or contract regularly in labor; torsion of the uterus; malposition of the ovum; uterine inertia and the danger of rupture in labor.

DISCUSSION.

DR. D. H. CRAIG, Boston, referred to a case on which he had operated at the Free Hospital for Women, performing a double suspension, practically at the bases of the round ligaments, making two points of suspension from the anterior abdominal wall. Eighteen months later the same patient returned to the hospital and was operated on by Dr. Baker, who found the uterus again in retroversion of the third degree and supposed that the suspensory ligaments had given way. They had, however, only stretched, one being about four and the other about five inches in length. The conclusion drawn from this case was that this method was neither better nor worse than other methods of suspension, and that a recurrence of the retroversion after any ventral suspension should always be considered an indication for immediate operation because the bands resulting from the stretching of the suspensory ligaments may cause intestinal obstruction.

DR. GEORGE ERETY SHOEMAKER, Philadelphia, stated that for several years he has been suspending the uterus in front of the tubes, and has yet to see a complication in pregnancy resulting. The band is liable to stretch, but it will not get in the way of an expanding uterus.

DR. L. H. DUNNING, Indianapolis, has employed a method of suspending the uterus for four years with good results. Eight of his patients, so far as he knows, have been delivered at full term without any complications. The suspension is made just opposite to the insertion of the fallopian tube. He uses three sutures, the first two being of chromicized catgut. These sutures are passed into the uterus for about one-third of an inch, and are buried for from one-half to three-quarters of an inch, and are about one-third of an inch apart. Another suture of silkworm gut is introduced between the two and is not carried deeply into the uterus and the ends are carried through all the layers of the abdomen. The catgut sutures are carried through the peritoneal and deep fascia, muscle and superficial fascia, where they are tied. Before the sutures are tied a small rectangular space is scarified. The result is that there is only one ligament, not two, and it stretches readily so that there is finally a movable uterus. Dr. Dunning operated on one of these cases three months later and found a ligament about half the size of a piece of chalk. He has employed that method in 165 cases, and at last accounts there were eight pregnancies without any complication. It would require an unusually severe case to convince him that any danger can result from that method of suspension. The Alexander method, in his experience, has failed in more than one-half of the cases, when delivery took place afterward. The internal shortening of round ligaments results in failures in more than one-half of the cases, and, furthermore, there are unpleasantnesses attending that operation that are distressing, such as very severe pulling and pain on one side. He has seen two cases in which the distress was so great as to impair the nutrition of the patient, so that, at one time, a premature delivery was contemplated. In reply to a question, Dr. Dunning said that these sutures are placed on the anterior portion of the uterus just opposite the insertion of the fallopian tubes.

DR. F. B. DORSEY, Keokuk, Iowa, said that for more than ten years he has been employing a method similar to Dr. Dunning's, except that he uses two sutures through the anterior part of the uterus, introducing a through-and-through silkworm gut into the uterus and including only the serous coat, not allowing the needle to enter the muscular coat, and bringing it out from one-half to three-quarters of an inch away, and then out through the abdominal wall. These sutures are allowed to remain for from twelve to fourteen days. Seventeen pregnancies followed, and only two were delivered by instruments, not because of any malattachment, but because of a disproportion existing between the maternal pelvis and the

child's head. There have occurred three abortions, and, so far as he can learn, they were not due to the suspension. The anterior attachment of the uterus is not followed by the usual discomfort or annoyance that is experienced when the attachment is made to the fundus, and particularly when the attachment is on the posterior surface of the uterus. He agreed with Dr. Dunning that the Alexander operation, and any of the operations thus far devised, do not give the results obtained from anterior suspension of the uterus.

DR. H. D. FRY, Washington, D. C., said that he has done ventral suspension in about 150 cases, and has attended labor in 15 cases after the operation had been done. In not one of these cases was there any trouble during the pregnancy nor difficulty in labor requiring any artificial means to terminate it. He operated on six of these cases afterward and found a suspensory ligament two and a half inches in length, fan-shaped, or simply holding the uterus loosely in position. He has not had a case of recurrence or displacement after suspension. He did a suspension operation in one case during pregnancy. The uterus was retroverted and incarcerated at about the third month. He broke up the adhesions, put the uterus into place and suspended it. The woman went on to full term, was delivered, and the uterus went back into its proper position. His experience with ventral suspension is very satisfactory. One of the worst cases of suffering he ever saw occurred after an Alexander operation. In some respects it was a great success. Dr. Kellogg of Battle Creek, Mich., operated on a woman, married for twenty years, sterile and a chronic invalid. Dr. Kellogg cured the displacement and in a few months the woman became pregnant, but for seven months she was confined to bed, suffering constantly from a dragging on the shortened ligament on the left side. However, the labor was normal and the position of the uterus was satisfactory at the time Dr. Fry saw her. He saw a case where the intention was to perform suspension, but the uterus became fixed to the abdominal wall and the woman had a ventral fixation. She came to the hospital, having been in labor twenty-four hours. The pains had not been very strong, and his attention was not directed to her until that time. Examination showed a dragging of the abdominal scar; the uterus was bound tightly to the abdominal wall. The anterior part of the uterus was held closely, and its neck was flexed at a right angle; the posterior part had descended, the os pointing directly forward and in right angle flexure. The case was delivered by cesarean section, which was successful.

DR. F. F. LAWRENCE, Columbus, Ohio, said that on several occasions he had brought before this section an operation that has been uniformly successful. It is simple, effective, and supports the pelvic organs and does not interfere with pregnancy. A suture of kangaroo tendon is passed through the fundus of the uterus slightly posterior to the median line and then passed through the posterior layer of the broad ligament on one side; the suture is brought over and tied at the point of beginning, then passed through the opposite broad ligament, brought back and tied again. Two or three stitches through both these folds, passing also through the peritoneal coat of the fundus, completes the operation. It shortens and raises the broad ligament and absolutely supports the uterus without there being any possibility of interference with pregnancy.

DR. JOHN C. APPLEGATE has not seen any bad results follow suspension, provided the sutures are placed on the anterior surface of the uterus. He has not had the experience of the physician who reports a case where elongation of the suspensory bands allowed a recurrence of the original symptoms.

Physicians' Business Methods.—The *Medical Times* says that if a patient gets the impression that his physician may be paid at any time or not at all, that bills are carelessly made out and as carelessly attended to, the patient will become equally careless. There is no loss of dignity in informing the patient that bills must be promptly paid. When a physician has allowed accounts to run for months, or perhaps years, without a murmur and then employs a collector, he generally loses both accounts and patients.

A STUDY OF EIGHTEEN CONSECUTIVE CASES OF WHOOPING COUGH TREATED BY THE ELASTIC ABDOMINAL BELT.*

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In June, 1903, I published an article entitled "Whooping Cough: A New Method of Treatment." This method consisted in the application of a slightly constricted silk elastic abdominal belt to all children having pertussis. The results attained at that time from a very few cases were of so startling a nature, that I determined to study a number of consecutive cases in detail and the results in this series of cases are now presented.

These cases, it is to be remembered, are all consecutive. When a drug or a method of treating a disease is first brought forth, it is easy for the originator, if he select his cases, to prove that his new method is positively without flaw. Let him, however, report a chain of consecutive cases, and the weak links will be seen immediately. I therefore especially invite criticism of this new pertussal chain which it has been my pleasure to forge during the past few months.

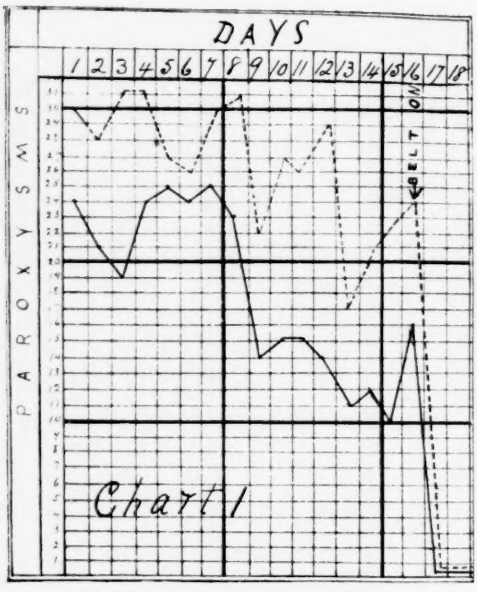
METHOD OF APPLICATION OF BELT.

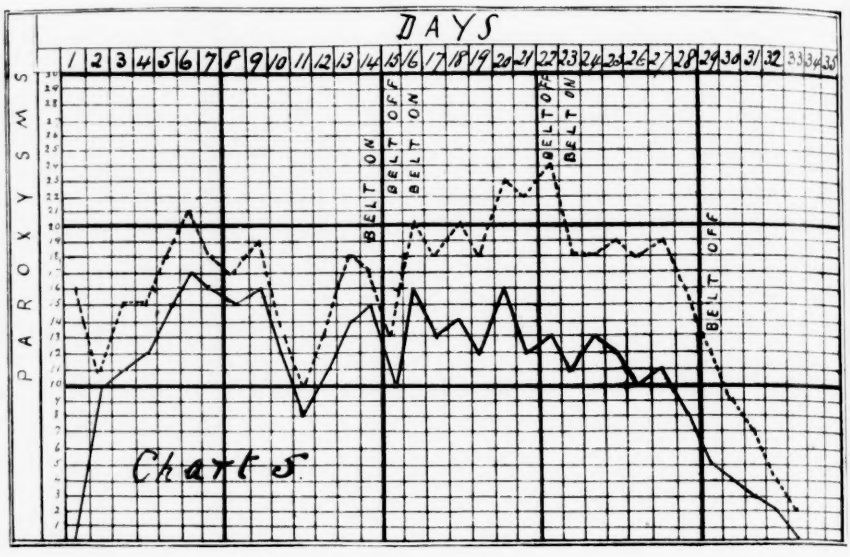
The method of applying the belt is as follows: A stockinette band is placed on a baby with whooping cough, in the same manner as is done by orthopedists before applying the plaster-of-paris jacket. This band extends from the axillæ to the pubes and fits the baby snugly. Two muslin shoulder straps are used to prevent the band from slipping down (Fig. 1). On this stockinette band a single width of silk elastic bandage is sewn, extending entirely around the body and covering the abdomen (Fig. 2). This silk elastic bandage is of the same quality as that used for elastic stockings. If the child is under a year old, it will be found necessary to use but one width (5 inches) of this elastic bandage; in an older child, two widths will often be found necessary to entirely cover the abdomen. This silk elastic bandage is pinned in place when very slightly on the stretch. After it is pinned in place, it should be sewn to the stockinette band underlying it, all around its entire edge; this procedure keeps the silk elastic belt flat and prevents its rolling up or becoming creased. The lower projecting portion of the stockinette band should be pinned down to the outside of the diaper or other clothing, thus keeping the elastic belt smooth over the abdomen.

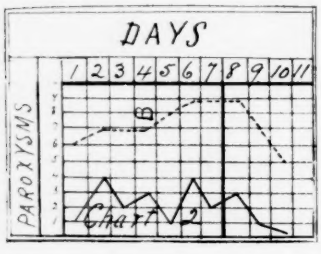
I have used this belt with great success to control the obstinate vomiting of pertussis where an infant in some cases would die without its use, on account of the inanition caused by the incessant vomiting. The old sea-sickness belt is well known, but its application to a child for the vomiting of whooping cough is, I think, entirely a new feature, and one which I have failed to find mentioned in my perusal of the literature of pertussis. In some of the most aggravated cases, the vomiting has been seen to stop on the application of the elastic abdominal belt. Should the vomiting continue after the belt has been applied, tighten the belt slightly, and in most cases the vomiting will cease.

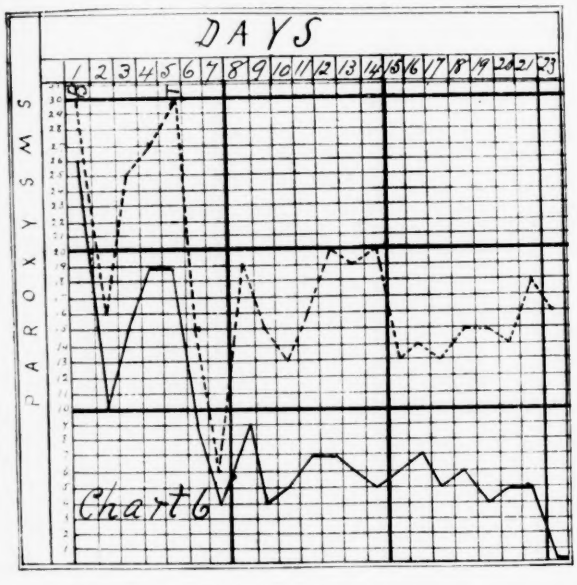
Although the graphic charts show some diminution

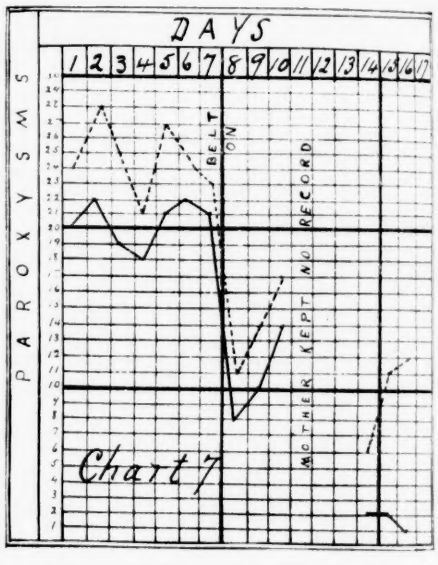
* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

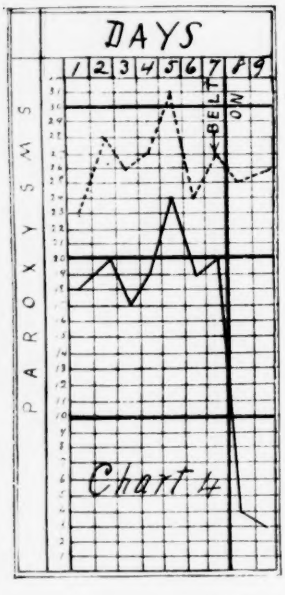


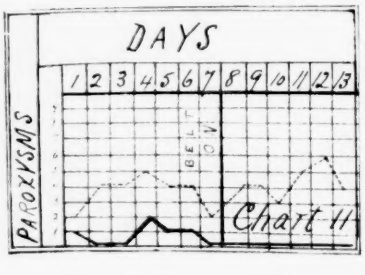


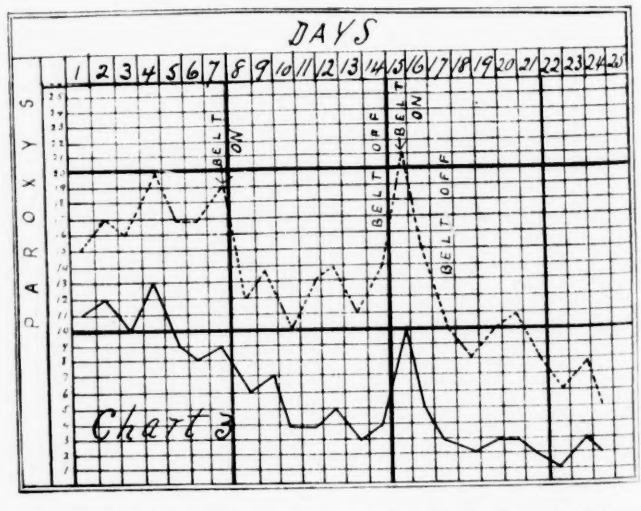












EXPLANATION OF CHARTS.

Vomiting is indicated by the solid lines, coughing by the broken lines. B indicates the application of the belt. T indicates the tightening of the belt.

Chart 1.—Age 4 years. Paroxysms ceased immediately on application of belt.

Chart 2.—Age 2 years. Gradual diminution of cough and vomiting.

Chart 3.—Age 13 months. On application of belt both cough and vomiting decreased. On the fourteenth day the mother removed the belt, and the number of paroxysms immediately increased, the belt was consequently reapplied and the paroxysms immediately decreased. The seventeenth day the belt was permanently removed and the paroxysms still remained low.

Chart 4.—Age 2 years. After application of belt the number of coughing paroxysms remained about the same. The vomiting was diminished from 20 a day to 3 a day. This case was a dispensary case and was not seen after the ninth day.

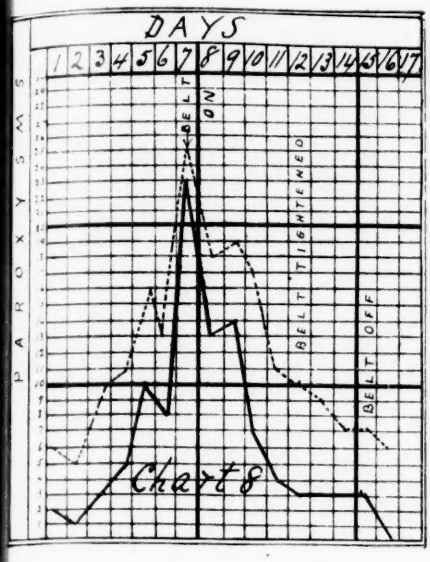
Chart 5.—Age 6 months. On first application of belt, slight diminution in paroxysms. When the mother removed the belt the following day paroxysms slightly increased. Subsequent use of belt proved a failure. In the entire series this is the only failure to reduce the number of vomiting spells by the belt.

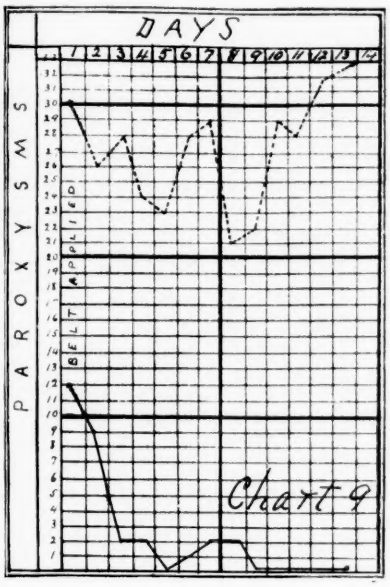
Chart 6.—Age 18 months. Paroxysms immediately fell on application of belt. They gradually increased for 4 days until the belt was tightened, and then marked decrease.

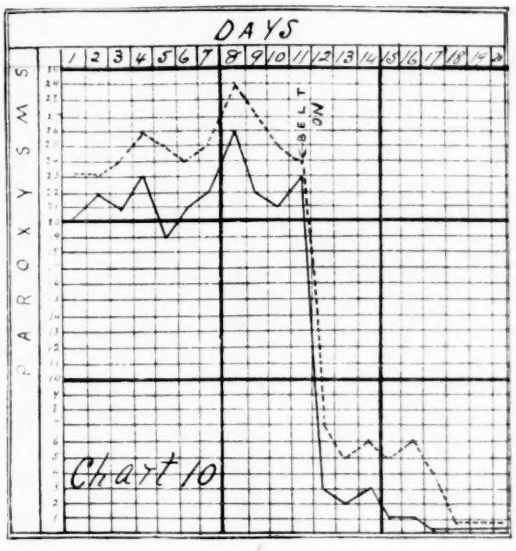
Chart 7.—Age 3 years. Paroxysms immediately decreased.

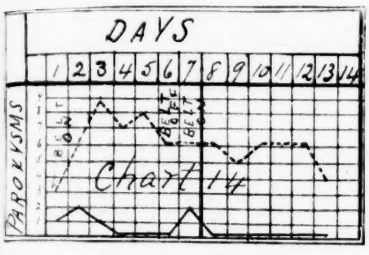
Chart 8.—Age 5 years. Gradual diminution of paroxysms.

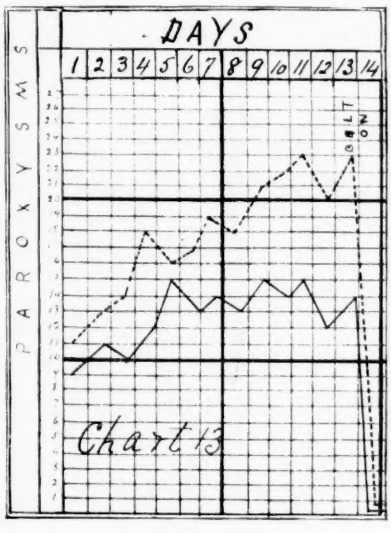
Chart 9.—Age 4 months. Although the cough was apparently not influenced by the belt, the vomiting was greatly diminished.

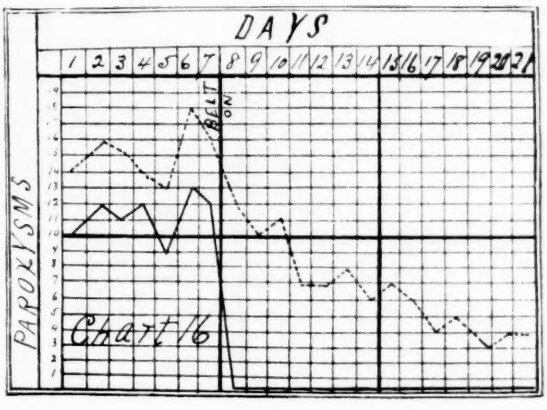


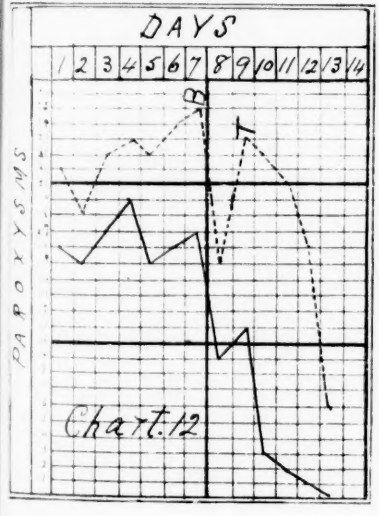


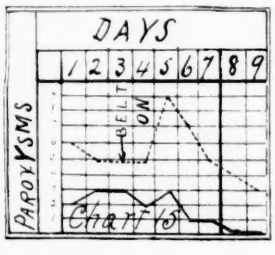












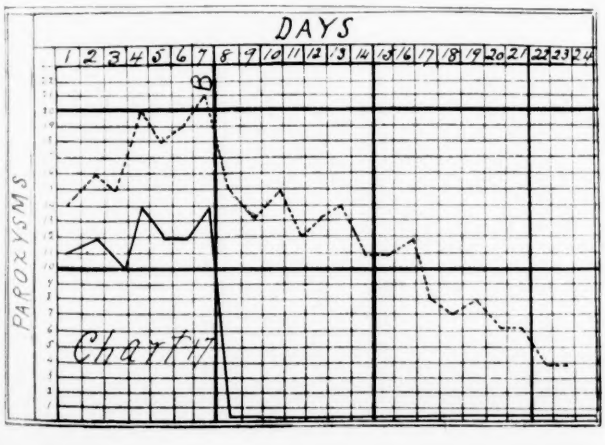


Chart 10.—Age 22 months. Immediate diminution of both cough and vomiting.

Chart 11.—Age 7 months. Vomiting entirely ceased, although the number of coughing paroxysms slightly increased.

Chart 12.—Age 6 months. Diminution of both cough and vomiting on application of belt; also diminution of paroxysms after belt was tightened.

Chart 13.—Age 4 years. Cough and vomiting entirely ceased. Three weeks afterward the paroxysms had not returned.

Chart 14.—Age 9 years. Although the paroxysms increased after belt was applied vomiting decreased to an absolute cessation of vomiting. The mother removed belt on the sixth day and vomiting began again and increased. Belt was applied again on the seventh day and the vomiting decreased to 0.

Chart 15.—Age 6 years. Gradual cessation of vomiting.

Chart 16.—Age 7 months. Immediate cessation of vomiting and gradual cessation of cough.

Chart 17.—Age 5 years. Vomiting absolutely ceased on application of belt. Cough gradually diminished.

Chart 18.—Age 4 years. Vomiting stopped immediately on application of belt. Belt was removed on the twenty-first day, and vomiting immediately recommenced. Belt was reapplied the next day and vomiting immediately stopped.

Chart 19—Age 3 years. A case of whooping cough in which no belt was used. This chart may be compared with those of cases where the belt was used.

in the number of paroxysms of coughing, the character of these paroxysms seems to be modified to a great degree. The benefit of the belt is best seen in the cutting short of the vomiting spells. The child will cough, but he will not vomit. In many of these charts the vomiting will be seen to have immediately fallen from twenty paroxysms a day to an absolute cessation of

vomiting. The following series of charts was made by giving a whooping-cough chart to each mother of a child with pertussis. The name, address, age and stage of the disease were plainly written on the chart; the mother was in each case instructed how to use it. She was told that each time the baby coughed she was to place a cross (X) in the paroxysm column, noting the time of day; if the baby vomited when he had the paroxysm, the mother was told to place another cross (X) in the vomiting column. Through the kindness of our chairman, Dr. C. G. Kerley, I was enabled to make many of my observations on cases seen at his clinic at the Babies' Hospital; other cases in this series were seen at my own clinic at the West Side German Dispensary, and a few cases were observed for me by personal medical friends. In all cases observed the intelligence of the mothers keeping the charts was a prominent feature. When it was possible to do so, we had the mothers keep the charts for a week before applying a belt. We gave each case some plain placebo to keep control of the patient. After the case had been watched for one week, we then put the elastic abdominal belt on the child, kept up the same placebo, and continued to have the mothers keep the charts. The results, especially as to the vomiting, were surprising and in some cases spectacular. Each of the following graphic charts represents the careful record made by each mother, and is based on the study of the charts that she kept; the number of paroxysms of coughing and vomiting are graphically depicted in a similar manner to a temperature chart. The solid black line represents the vomiting, and the dotted black line represents the coughing. In several instances it will be seen that the mother for some reason removed the belt, with the result that the vomiting was immediately and markedly increased; the belt was then placed in position once more, and the vomiting immediately ceased.

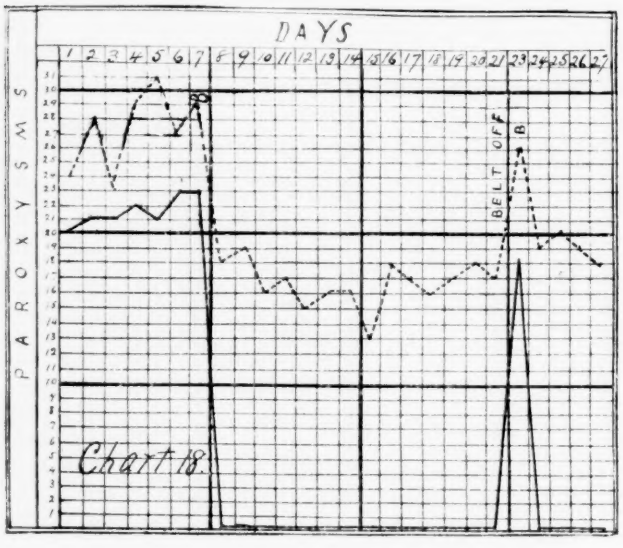
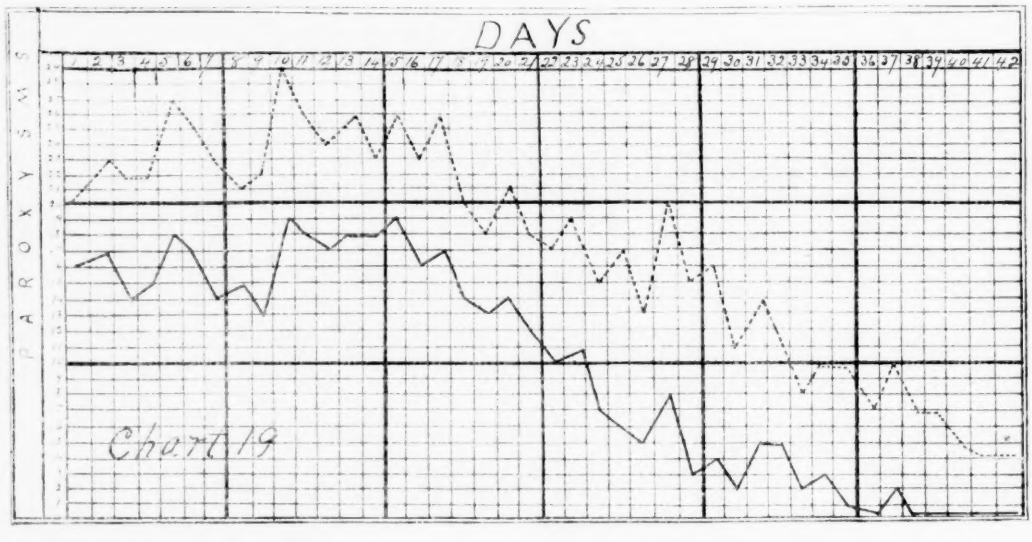


TABLE 1. SAMPLE OF CHART KEPT BY MOTHER.

Name, X Y; age, 2 years; address, —; stage of disease, spasmodic (3 days).

Date	Time	Paroxysms	Vomiting	Remarks
Jan. 4	3 p.m.	X	X	
Jan. 4	3.20	X		
Jan. 4	4.10	X	X	Nose bled.
Jan. 4	5	X	X	
Jan. 4	5.30	X		
Jan. 4	6.05	X	X	
Jan. 4	6.45	X		
Jan. 4	7.20	X	X	
Jan. 4	9	X		
Jan. 4	10.20	X	X	Could scarcely get breath.
Jan. 4	11	X		
Jan. 4	11.40	X	X	
Jan. 5	12.30 a.m.	X		
Jan. 5	1.20	X	X	
Jan. 5	3	X		
Jan. 5	5	X	X	Nose bled.
Jan. 5	5.30	X		
Jan. 5	6.10	X	X	
Jan. 5	7	X		



The charts of the eighteen consecutive cases explain themselves. The aspect of a case of whooping cough when wearing the belt is entirely different from an ordinary everyday case when the child is not wearing the belt. This difference is very strikingly shown by comparing Chart 1, in which both the vomiting and cough ceased immediately on the application of a belt, with Chart 19, which is of a case in which no belt was used.

Does the belt cut short certain cases of whooping cough? I do not know, but, from the study of several of my charts, such would seem to have been the case. If some skeptical person is asking, "Were all your cases positive cases of whooping cough?" I can answer by saying that when a child has had a short, dry cough for a week or two, becoming harder, then more paroxysmal in character, the patient becoming red in

the face, holding his breath, whooping and vomiting, and having a chest that is entirely negative, I claim that such a case is positively whooping cough. Again, nearly all of my cases were also seen by men whose reputation in the pedriatic world is unassailable. The question of a faulty diagnosis, therefore, I think, can be safely ruled out.

I was first induced to try this belt method of controlling the paroxysms by a patient, a little boy five years old, who would run to his mother each time he felt a paroxysm coming on and beg his mother to "hold my stomach tight!" The belt simply puts the stomach and abdomen in a splint; it supports the abdominal walls and prevents that discomfort and relaxation which we have all observed when suffering from any disease which produces a distressing cough. By way of digression, this belt has been used of late to control the vomiting of phthisis and pregnancy; it has been of marked service in cases of pleurisy and also makes an ideal dressing for a fractured rib.

The expressions from children themselves when wearing the belt are very instructive; one of my cases, a boy nine years old, actually cried for his belt, his mother having removed it. To use his own words, he cried, "Mamma, my stomach will burst without my belt on." Another child said that she was afraid to cough unless she had on her belt.

I thought that I was the originator of this form of treatment for whooping cough, until I came to my fourteenth case; when I proposed putting on the belt in this case, the mother, an old German woman, informed me that ten years ago in Germany she had brought her eldest son through an attack of whooping cough and that she had taken a bandage and tied it "as tight as anything" around her child's abdomen with the result that he vomited very little after the application of the belt.

The study of this series of cases has evolved some interesting and I think unique information; for instance, the ratio between vomiting and coughing has been found to be as 2 to 3, that is to say, if a child vomits 8 times a day, he must have had 12 paroxysms of coughing to have produced the 8 vomiting spells. The converse of this is also true—therefore, a child empties his stomach two-thirds as many times as there are paroxysms of coughing. For example, if a child has 21 paroxysms a day and we wish to know how many times he vomited, we take two-thirds of 21, which gives 14 vomiting spells a day. Or, if a child has vomited 8 times a day, to find how many paroxysms of coughing he had to produce these 8 vomiting spells, we employ the equation: 8 is 2/3 of what? and find the answer to be: 12 paroxysms a day, to produce the 8 vomiting spells. The above information, although of practically little value medically, is nevertheless interesting.

This otherwise fairly constant relation of 2 to 3 between vomiting and coughing has been disturbed in Chart 9 and the disturbing factor is the belt. In Chart 18 the relation of vomiting to cough (2 to 3) is very well exemplified during the first week without the belt, then, as the belt is applied, this normal relation of 2 to 3 is disturbed. What has disturbed it? It is the belt. This disturbed relation goes on for two weeks, the belt is now removed, and immediately the normal relation of 2 to 3 is once more established, but again to be disturbed the next day by the re-application of the belt. What is more conclusive of the beneficial action of the elastic abdominal belt than the study of this one chart alone?

In Table 2, which is a summary of all cases treated, I wish to simply bring out a few well-established facts. It is true that the suggestion may be made that a series of but eighteen cases is not sufficient to establish conclusive proof of the efficacy of any new method of treatment, but, as I said in the beginning of my paper, these cases are consecutive and, if certain marked factors are present in practically all of the series, truly the most skeptical mind must admit that something other than mere coincidence has been at work to cause such results. The final results are as follows:

1. Out of 18 cases there have been but 6 failures to benefit cough.

TABLE 2.

No.	Name	Sex	Age	Stage When Belt Was Applied.	Paroxysms a day	Vomiting: Cured	Vomiting: Imp.	Vomiting: Unimp.	Cough: Cured	Cough: Imp.	Cough: Unimp.	Effect on Vomiting Only: Immediate	Effect on Vomiting Only: Gradual	Effect on Vomiting Only: None
1	E. F.	F	4 Y.	Spasmodic 2 weeks	30	X	..	..	X	..	..	X	..	..
2	C. M.	F	2 Y.	Spasmodic 4 days	6	..	X	..	..	X	..	..	X	..
3	Z. H.	F	13 M.	Spasmodic 1 week	16	..	X	..	..	X	..	..	X	..
4	T. B.	M	2 Y.	Spasmodic 3 weeks	28	X	..	..	..	..	X	X	..	..
5	M. F.	F	6 M.	Spasmodic 2 days	16	..	..	X	..	..	X	X	..	X
6	W. M.	M	18 M.	Spasmodic 2 weeks	30	..	X	..	..	X	..	X	..	..
7	N. F.	F	3 Y.	Spasmodic 1 week	24	..	X	..	..	X	..	X	..	..
8	T. R.	M	5 Y.	Spasmodic 1 week	23	..	X	..	..	X	..	X	..	..
9	S. K.	F	4 M.	Spasmodic 1 week	30	X	..	..	..	..	X	X	..	..
10	C. C.	F	22 M.	Spasmodic 10 days	20	X	..	..	X	..	..	X	..	..
11	H. L.	M	7 M.	Spasmodic 1 week	4	X	..	..	..	..	X	..	..	..
12	M. C.	M	6 M.	Spasmodic 6 days	20	..	X	..	X	..	..	..	X	..
13	L. B.	M	4 Y.	Spasmodic 13 days	20	X	..	..	X	..	..	X	..	..
14	A. H.	M	9 Y.	Spasmodic 4 days	7	..	X	..	..	..	X	..	X	..
15	J. O.	F	6 Y.	Spasmodic 1 week	6	..	X	..	..	..	X	..	X	..
16	T. A.	M	7 M.	Spasmodic 5 days	15	X	..	..	..	X	..	X	..	..
17	D. W.	M	5 Y.	Spasmodic 10 days	18	X	..	..	..	X	..	X	..	..
18	M. G.	F	4 Y.	Spasmodic 1 week	24	X	..	..	..	X	..	X	..	..

SUMMARY OF CASES.

Males, 9. Females, 9. Ages, from 4 months to 9 years. Vomiting ceased immediately and permanently in 9 cases; was markedly lessened in 8; was not lessened in 1. There were beneficial results in 17 cases and 1 failure, or 94 per cent. benefited. Cough ceased immediately and permanently in 3 cases; was markedly lessened in 9; was not lessened in 6. There were beneficial results in 12 cases and 6 failures, or 66 per cent. benefited.

2. Out of 18 cases there has been but one failure to benefit vomiting. Positive good effect on coughing is seen in 66 per cent. of cases in series. Positive good effect on vomiting is seen in 94 per cent. of cases in series.

CONCLUSION.

In conclusion I wish to say that a method for the treatment of whooping cough which will reduce the total number of vomiting spells (as was done in the above series of cases) from 3,951 a week to 463 a week, thus showing a reduction of 89 per cent. in the vomiting, certainly should be given a fair and impartial trial.

DISCUSSION.

DR. CHARLES G. KERLEY, New York City, reported having seen the treatment of some of these cases, and declared that relief was afforded. He thinks that it is particularly valuable in very young children under 18 months of age, in whom medication is rather difficult because of the effect on the stomach.

DR. LOUIS FISCHER, New York City, reported having tried the method in three cases, with considerable benefit. In one case particularly, where bromoform, belladonna and morphin in considerable doses did not give any relief, some benefit was obtained by the use of a stout binder fastened about the chest.

DR. R. B. GILBERT, Louisville, Ky., suggested an objection, the danger of a hernia resulting from the tight constriction of the chest and abdomen. It is well known that in young in-

fants such a constriction, if too tight, may result in hernia during the effort of crying, and perhaps in older children it might also give rise to a hernia when the child coughs.

DR. J. F. BIGONY, Hinton, W. Va., asked Dr. Kilmer if he had ever tried a constriction about the head and underneath the jaw in the treatment of whooping cough. Dr. Bigony has seen this method relieve the paroxysms very markedly.

DR. JOHN L. MORSE, Boston, asked if Dr. Kilmer was not mistaken in regard to the proportion between the number of paroxysms and the number of attacks of vomiting; he thought that there could not be such a definite relation between the two. All physicians have seen undoubted cases of whooping cough in which there was no vomiting whatever.

DR. L. C. AGER, Brooklyn, N. Y., asked Dr. Kilmer at what stage of the disease the cases came under his observation. We all see cases of whooping cough where the disease has existed for some time, and in which there is very sudden and rapid improvement.

DR. L. BERNHEIM, Butte, Mont., said that pressure on the thorax relieves the pain in pleurisy, because it limits the movements of the chest. The same explanation probably applies to this method of treating whooping cough. With a stout binder around the chest and abdomen, it is impossible to take a deep inspiration, and this may prevent the onset of a fit of coughing or vomiting.

DR. THERON W. KILMER said that this method can be used with good effect to control the pain of pleurisy. It possesses some advantage over the use of adhesive plaster in that it can be easily removed. He agreed with Dr. Gilbert that this method is purely mechanical. Hernia does occur in whooping cough, but Dr. Kilmer said he had never seen it. About four years ago he saw a case in which hernia developed subsequent to whooping cough. No bandage had been used, and he did not know the cause. In his cases, no treatment was used outside of the belt, excepting some harmless placebo. He has never seen any benefit follow the method of constricting the movements of the jaw.

In regard to the proportion between the vomiting and coughing spells, the ratio is as two is to three in this series of cases. Some patients with whooping cough do not vomit at all, but they are exceptional. We see cases of diphtheria without any temperature, but they are also exceptional. In many cases the belt was applied very early in the disease. Dr. Kilmer said he had no scientific explanation to offer for the relief afforded by the belt. It is well known that persons suffering from seasickness get some relief from wearing a belt, but what the scientific explanation of it is, he does not know other than that it puts the stomach, as it were, in a splint.

THE NERVOUS SYMPTOMS PRODUCED IN CHILDREN BY UNCORRECTED REFRACTIVE AND MUSCULAR ERRORS.*

J. HERBERT CLAIBORNE, M.D.
NEW YORK CITY.

To present the subject in a logical manner, permit me to review in a general way the refractive quality of the normally and abnormally constructed eye, and the adjustment of its external muscular system.

The eye may be emmetropic, hypermetropic, myopic, or astigmatic.

Emmetropia is, of course, the ideal condition, and it may be defined as that refractive condition in which distant or parallel rays of light are focused on the retina without any effort on the part of the accommodative muscle. Such an eye, in regarding distant objects, i. e., objects at or beyond 20 feet, is merely a camera obscura, in which the focus is formed on the retina. Such an act, under such conditions should be, in the natural order of things, achieved without discomfort. (Fig. 1.)

The hypermetropic eye is an eye that is shorter in its anteroposterior diameter than the emmetropic eye, and hence, given the same refractive media as the emmetropic eye, it can not bend parallel rays to a focus on its retina by virtue of its refractive power in a state of quiescence.

If such an eye be in a state of rest, parallel rays would fall on its retina while in the act of coming to a focus, i. e., before the focus is achieved. The cone of light would thus be obtruncated, and the retina, instead of receiving a point for each pencil of rays, would receive a cone, the size of which would be greater the farther from the focus the retina cuts the cone. In other words, the shorter the eye, the more hypermetropic it is, and the larger the cone or circle of diffusion on the retina will be.

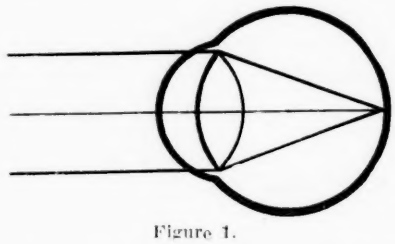


Figure 1.

Now, if the hypermetropic eye has to depend on its length alone to bend rays to a focus on its retina, it would never see distant objects well for obvious reasons, and its English synonym, far-sighted eye, would be a misnomer. (Fig. 2.)

But there is within the eye the accommodative apparatus, consisting of the accommodative muscle, the lens and the ligament of Zinn, by means of which refractive power can be added to the eye, and the rays be brought to a focus on the retina.

This accommodative apparatus is well named; it is surely an accommodation in some conditions. But Nature never intended that it should be used to further the interests of the hyperope. It was primarily given in order that the emmetrope might see objects well within

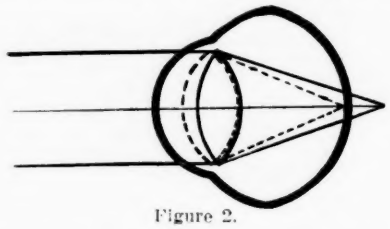


Figure 2.

20 feet. For it must be clear from the foregoing that since the emmetropic eye can only focus parallel rays, the divergent rays coming from objects nearer than 20 feet, would fall on the retina of the emmetropia in the act of convergence, and circles of diffusion instead of points would be formed. (Fig. 2.) This apparatus has its natural function in bending the divergent rays of light coming from objects nearer than 20 feet, to a focus on the retina of the emmetrope, or the man with the properly shaped eye. This is its primal function and this alone. Our brain apparently abhors an imperfect image on the retina, for the only occasion in which this can possibly happen to the ideal emmetropic eye, the occasion of looking at near objects, is quickly met by the apparatus of accommodation and the imperfect image is immediately transformed into a perfect one.

When, then, the hyperope opens his eyes on the world

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

and perceives an imperfect image on his retina, he turns to his native instinct for relief, the instinct or desire for perfect vision. A call is made on his accommodation, the mechanism of this apparatus is set in motion, and a perfect image obtained. But this is distinctly a vicarious and a vicious act, contrary to right, vicious in its conception, and subversive of physiologic law. Law broken demands its inexorable penalty and the uttermost farthing is paid. Imagine a child with 2 D. of hypermetropia, and look for a moment at the effort that that child supports even to see for distance—an act that ought, in the natural order of things, to be achieved without discomfort, if not with pleasure.

Two D. of hypermetropia measured in the inch system, means that the possessor, in order to see clearly in the distance, has to strain as much as an ordinary emmetrope does to read a fair-sized type at 20 inches from his eyes. To put it in other terms, it would require as much work as would be required for an emmetrope to wear a pair of concave lenses of 20 inches focal distance in going about. When near work is attempted by such a child, of course this labor is added to the natural accommodative act.

These illustrations give a fair idea of the condition of the hypermetrope, and the cost at which he purchases clear distant vision. The condition of the myope is no less unfortunate, but in a different way.

Myopia is the condition in which the eyeball is longer in its anteroposterior diameter than in emmetropia. Given the same refractive media then as the latter, the parallel rays of light from distant objects will come to a focus before they reach the retina, in fact, in the vitreous humor, and having formed a focus, will cross each other, and will fall on the retina in the act of diverging. An obtruncated cone of light thus falls on the retina, and points are seen as circles. Such a person has an enlarged, badly defined image on the retina. Now, there is a great similarity between the state of the myope and the hypermetrope, and if one can imagine the accommodation eliminated, this similarity becomes evident. It will be remembered that the rays from distant objects fall on the retina of the hypermetrope in the act of converging, so that circles are formed instead of points, hence the image is badly defined and enlarged. (Fig. 3.)

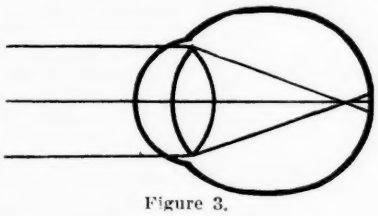


Figure 3.

The rays from distant objects come to a focus in the vitreous humor of the myope, cross and proceed to their destination on the retina in the act of diverging; hence, on the retina circles are formed instead of points, and the image is enlarged and badly defined. In the one case, the hyperope, it was the converging rays, before the focus was reached, in the other, the diverging rays, after the focus was reached.

Now given, let us say, 2 D. of error, hypermetropia and myopia, in two cases, and suppose the accommodation eliminated: the size of the images in the two cases will be the same, and the definition of the image equally bad. But the actual result is different. As a matter of fact, the child with 2 D. of hypermetropia overcomes its error and achieves a perfect image by an appeal to its accommodation. But suppose the myope should do the same thing. The act of accommodation in his case will simply add refractive power to his eye and the focus, so far from being thrust toward to the retina, will be brought still further forward in the vitreous, the circles on his retina will be enlarged, rather than decreased, and his sight made worse rather than bettered.

It is quite probable that every myope, as the condition commences to develop, attempts to remedy his evil by appeals to his accommodation, in accordance with the apparently natal instinct for perfect vision and abhorrence of an imperfect image. As a rule, time teaches the myope the futility of the effort, and his hope lies in the art of man. The hyperope sees well, but has to pay the price in the coin of broken law; the myope can not see distinctly and is doomed, unless artificially relieved, to imperfect images and the mental confusion that naturally results therefrom.

The eyes that have just been described are called "spherical eyes," and are so named for good reasons. The radius of curvature of the cornea in spherical eyes is the same in the two principal meridians, and this fact constitutes the spherical quality. Now it is possible for eyes not to be spherical, and when they are not, they are astigmatic.

An astigmatic eye, in short, is an eye the radius of

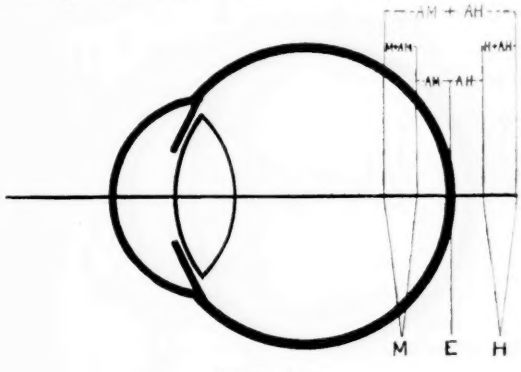


Figure 4.

curvatures of whose two principal meridians is not the same; the two meridians differ in curve; broadly speaking, the cornea is not the segment of a perfect sphere. Given a difference in radius in the two principal meridians, it is obvious that the image formed on the retina of the astigmatic eye is an indistinct one, and it is one which can not be correct in shape.

If a perfectly circular object, say the moon at full, is viewed by an astigmatic eye, the image of it can not be round—it must be more or less oblong. This is the essential character of the image in astigmatic eyes. Two foci must exist in such eyes, the one caused by the junction of the rays passing through one meridian, the other caused by the junction of the rays passing through the other. Mental confusion must necessarily result to the possessor of such an eye. (Fig. 4.)

CORNEAL ASTIGMATISM.

In astigmatism, the three conditions, emmetropia, hypermetropia and myopia are found severally in the principal meridians. There are five kinds of corneal astigmatism; simple hyperopic, simple myopic, compound hyperopic, compound myopic and mixed astigmatism. There are other kinds of astigmatism, but the corneal is the kind to which I would call your attention.

Simple Hyperopic Astigmatism.—Of the various kinds of astigmatism, there is little doubt that the hyperopic varieties cause the most important and the most

varied nervous symptoms. The reason for this is obvious. In simple hyperopic astigmatism, one focus is on the retina and the other behind it. Following the natural impulse to accommodate in the presence of an imperfect image, the brain sets the accommodation in motion, the swelling of the lens brings the hyperopic focus to the retina, but immediately the focus of the emmetropic meridian which was before on the retina, is now advanced into the vitreous, and the error is changed into a simple myopic astigmatism, because the muscle of accommodation is a ring-shaped muscle and acts spherically, and the lens increases its curve in the two principal meridians equally. The individual relaxes again and then accommodates again until a vicious habit is acquired, called an "accommodative spasm."

Compound Hyperopic Astigmatism.—If this is true of simple hyperopic astigmatism, how much more so is it true of compound hyperopic error. There is a double impulse to accommodate, to overcome the spherical error common to the two meridians and the astigmatic error of one meridian. These cases present the most varied and protean forms of reflex symptoms.

Myopic Astigmatism.—In the case of myopic astigmatic errors, the impulse to accommodate is less marked; the possessors of these errors usually do not develop spasm of the accommodation; but the images on the retinæ are blurred and misshapen, and thus reflex symptoms are the result of mental confusion rather than accommodative strain.

Mixed Astigmatism.—In mixed astigmatism, the image is possibly most misshapen of all, and the resultant confusion on that account, most marked. But there is apt to be also in this condition an element of spasm by virtue of the instinctive attempt to correct the hyperopic meridian.

ACCOMMODATION IN ASTIGMATISM.

It will be seen from this that it is entirely impossible for the astigmatic person to profit himself by the accommodative act. Like the myope, these unfortunates look to man's art for relief. It is important and necessary to remark here that the smaller errors of refraction, both spherical and astigmatic, are more frequently responsible for reflex symptoms than the greater ones. When the error is slight, as in hyperopia, for example, it seems quite impossible for the owner of the eye to avoid using his accommodation. In slight myopic errors, the brain seems to be unable to realize that it is quite as impossible to remedy an error of .50 D. as it is an error of 3 D. or 4 D. The analogue of this phenomenon is found in life. For example, one would not think of attempting to carry one or two hundred pounds, but would laugh at 25 or 30. The latter, if borne on a long and tedious march, will soon make itself felt.

Our European confrères can not be induced to share our views on this point. They maintain that slight refractive errors cause no discomfort, and correct only the great ones. Their views may be supported by their experience in Europe, but are contradicted by daily experience in the United States. Even our working classes are more highly strung than theirs, and the children in our schools are surely built of more nervous and sensitive tissues. The terrific pressure under which we live is largely at the bottom of this fact.

MUSCULAR DEFECTS.

We come on now to consider the external muscular system of the eye, consisting of the recti and the oblique muscles, by means of which the eye is turned in the various possible directions. To each eye there are four recti and two oblique muscles, making twelve for the two eyes. Now if in the natural order of things we had been made cyclopeans, with one eye in the middle of the forehead, this chapter in ophthalmology would not have been written, the task imposed on mankind simplified, and the nervous system would have been saved many disorders. As a matter of fact, however, we have two eyes, and we have an irresistible, instinctive desire to fuse the images of the two eyes and see an object single instead of double. If this act is achieved with comfort, it is not appreciated, but if it is achieved and continued with difficulty, it will nevertheless be continued whatever may be the price until paresis of one or more of the muscles sets in. When once single binocular vision is no longer possible (as a rule the nervous symptoms subside) and the possessor of the eyes sees double, or the brain denies one image, and single vision with one eye exists. While double vision may produce varied and diverse nervous symptoms, they are not of the character of those symptoms which are produced by the single binocular vision with muscular imbalance. When once the image of one eye is denied, all symptoms referable to the muscular system disappear. Children who have squinted from early life, generally see with one eye alone; in such cases it is exceptional to observe nervous symptoms referable to the eyes.

Each eye, then, has six muscles, and each muscle has its co-worker and antagonist, and each is entitled to a certain amount of pulling power for its own use and a certain amount of check power to limit the actions of its opponent.

When we consider the phenomenon of single binocular vision, the necessity of a clear and perfect image on both retinæ, the fusion of the two images into one, and the associated and antagonistic actions of the twelve external or extrinsic muscles, we can not but be impressed with the complicated and intricate nature of seeing one with two eyes and of continuing to perform the act. If by any chance the image on one or both retinæ is blurred, if by any chance it is necessary to strain to obtain clear vision, if further, even one of these complicated muscles possesses too much or too little power, the entire mechanism is disturbed, the balance is destroyed and disorder results.

Now, there are few if any eyes which are in all these particulars perfectly adjusted, and the wonder of it all is that men are able to perform their duties and achieve good results under such conditions.

Those who live out of doors, or whose occupations do not demand constant use of the eyes near by, do not so frequently exhibit the effects of eye-strain as those whose duty requires constant use of the eyes for near work.

CAUSES OF EYE-STRAIN IN CHILDREN.

The causes of eye-strain in children are found in refractive and muscular irregularities, in the unhygienic and badly illuminated school and study rooms, and in the silly and unreasonable demands made on the brain and nervous systems of the children of this generation by parents and educators. At the very age when the tissues are most yielding and soft, and the whole nervous system is tingling with new and unanalyzed sensation, before experience has had opportunity to teach the value of economy of time and effort, mental and nervous loads are put on our children that could not be borne under the most ideal conditions.

NERVOUS SYMPTOMS IN CHILDREN.

Headache is, by far, the most common nervous symp-

tom in children, caused by ocular irregularities; it is usually frontal, over both eyes, and is at times accentuated over the supraorbital notch. It may, however, be in the occiput, in the back of the neck, and there are areas of tenderness just behind and below the mastoid process. The headache may be constant, after the duties of the day are begun, or may come on only when near work is commenced, and disappear when it is laid aside. As a rule, however, the headache persists during school hours. Along with headache may be associated nervousness, inability to fix the attention, the lack of power of concentration, cold hands and feet, restlessness, irritability, peevishness, sleeplessness, lassitude and scotoma scintillans.

The severer forms of headache met with by eye surgeons, in my experience, do not occur amongst children, and I have rarely seen a school child who came to me with a story of periodic sick headache in which there was vomiting, photophobia, nervous exhaustion, and the necessity of taking to the bed. The headache which I have found in children that is due to ocular disturbances is, as a rule, headache of the subacute and chronic variety, or that form which comes on directly the eyes are set to do near work. Such patients generally possess a facial expression which ought to lead the acute observer to the suspicion of ocular strain. The brow is usually corrugated, either by straight vertical furrows between the eyes, or by nervous lifting of the brows, which throws the forehead into longitudinal wrinkles: sometimes one eyebrow alone is lifted, and is kept in that position or drops and lifts alternately in nervous spasm. I have two such cases of the latter in mind at this moment. At the same time, the general expression of the countenance is one of weariness and anxiety. Sometimes it begets a furtive look, at others, the aggressiveness of the frown.

When the error is hyperopic, the expression is generally one of painful alertness, but when the refractive error is sufficiently great and of a character to produce bad distant vision the expression is one of uncertainty, hesitation and indecision. In high spherical myopia, the expression of the face is placid, inane and vacuous: in young girls it has sometimes been esteemed a mark of dreamy beauty: in boys, it has been considered a mark of stupidity. In these particular cases the utter impossibility of achieving a sharp image on the retina has already been recognized, and the vacuous look is an expression of hopelessness. At times, such patients, particularly when they desire to scrutinize anything at a distance, squeeze their eyelids together in order to lessen the size of the circles of diffusion on the retina. This act, while it strongly suggests myopia, and is indeed the basis of the word describing the condition, is nevertheless not peculiar to the myope, but may be used for the same purpose by one whose pupils are artificially dilated or by those with very high degrees of spherical hyperopia which they can not overcome: and still again by those with a high grade of astigmatism. One should not be misled by this act. It suggests myopia, and should arouse the suspicion of refractive errors, but it should not necessarily be interpreted to mean the presence of myopia.

The expression of the human face is usually an index of the visual acuteness: those who see sharply, quickly and accurately generally present the facial expression indicating alertness and intellectual or intelligent perception of surroundings. The face naturally mirrors the impressions received from the outside world, and chiefly those received through the eye.

When the impressions of the outside world received through the eye are acquired at the expense of pain and labor they are accordingly mirrored in the countenance. When the impressions are indistinct and confused, they are again consistently reflected. The value of facial expression as an aid in diagnosis has not, in my opinion, been sufficiently appreciated. In ocular disturbances, it is particularly significant.

Migraine.—Referring to the condition known as migraine or hemicrania, I observed that it has rarely been my fortune to find in children the typical attacks of periodic migraine or hemicrania. I have generally found these headaches among young adults, or adults who are literary, or whose occupation demands the constant near use of the eyes; yet, I have at times found it among children. It is held by some that cases of true periodic sick headache or migraine can not be cured by correcting ocular faults, and by others that they can. The truth, in my opinion, lies as usual, between the two. I can cite several cases in young adults, in whom the recurrence of the periodic attack and all the accompanying symptoms have been absolutely prevented by the correction of an ocular defect.

In this connection I would refer to the so-called cyclical vomiting in children, recently described by Holt. The refractive errors in such cases should always be corrected, and I herewith suggest that careful histories be kept of all such cases after the refractive correction has been made. It is not improbable that some of these cases, at least, may be relieved, and I believe that all of them may be modified by ocular correction. From the standpoint of the eye surgeon, I do not believe these cases have been properly studied.

I regret the scope of my paper will not permit me to go more thoroughly into the philosophy of migraine. But I can not let the subject pass without reiterating the statement that I have had a number of cases in my practice in which the recurrence of sick headache has been absolutely prevented by the correction of refractive errors. Such cases may be said to be cured, but under all circumstances I consider that the first rational method of treatment should be the accurate and careful adjustment of ocular errors, particularly the refractive ones.

Epilepsy.—Within the last fifteen or twenty years certain claims have been set forth to cure epilepsy and insanity by correcting ocular errors. Just after these claims were made, a number of test cases were given by a committee in the city of New York to the author of them, and a report was made by said author of the results of treatment at the end of a length of time sufficient to warrant conclusions. The results were practically *nil*, and the author and his claims were set aside by the great body of eye surgeons and neurologists as not worthy of scientific consideration. More recently abundant experiments have been made in the Craig Settlement for Epileptics. No case has been found to be cured or materially benefited by treatment of the eye.

Neither time nor the scope of my subject permit me to review more thoroughly the experiments referred to, the method of treatment, or the results of it. But the above simple assertion will be found to be amply corroborated by minute investigation. In my opinion there is not one single scintilla of scientific evidence to prove that either insanity or epilepsy has ever been in the slightest degree modified in their essential symptoms, by the correction of refractive errors, or the adjustment of the muscular imbalance.

While epilepsy and insanity do occur in children, they are rare, particularly the latter; and while they

are not, in my judgment, caused by ocular errors, yet so many absurd and vapid claims have been made by a few eye surgeons that the subject has been considered to be entitled to mention. Be it said, to the credit of neurologists, there are none among that ilk who held such views.

Paralysis and paresis have been mentioned as the result of ocular errors. I am not able to cite in my experience any single case in which a refractive error could be said reasonably to lie at the bottom of a true paresis or paralysis, be it in eye muscles or other structures. There are certainly mild cases of squint which may be interpreted as squint or phoria, which are relieved by refractive correction, but they are not cases of paralysis or paresis. Temporary paralysis or paresis of ocular muscles, ptosis and double vision have been cited, but I do not believe the observations on these cases have been correct. I believe they can all be placed in the category just mentioned, or are the result of hysterical mental imbalance.

I have frequently known people with refractive errors to complain of numbness in the hands or feet and in other portions of the body, and I have known these symptoms to disappear after the correction of the ocular errors. I believe all these cases are the result of hysteria, and the refractive or muscular error is simply the direct cause of the nervous storm. Such cases generally occur in neurotic subjects who are neurotic by nature, and who have been rendered exceedingly nervous by circumstances coupled with peripheral irritation.

Such symptoms do not very frequently occur in children unless the subject is the type just described, and possesses extraordinary intelligence and development. Hysteria and all the protean sensations characteristic of it are the result of experience, knowledge and introspection, coupled with the neurotic temperament. The combination just outlined is rarely possessed by children. Psychic sensations do, however, occur in children as the result of ocular strain, and one should not shut one's eyes to the fact. But they are much modified by lack of intelligence and experience, and the faculty of introspection, the latter being, in my opinion, a basal element.

Chorea.—It has also been claimed that true chorea is cured by ocular correction, but I have never known of a case of the chorea of Sydenham being caused by refractive or muscular error, or cured by its correction. This disease is prevalent among neurotic children, even among those who are not, and I have no doubt it is often confounded with an allied but different affection, namely, *tic convulsif*. This affection may often be relieved by correction of refractive errors or the adjustment of muscular imbalance.

Blepharospasm.—Blepharospasm or convulsive snapping of the lids, is a frequent concomitant of refractive errors, particularly hyperopic ones, and is almost invariably relieved by correction. In addition, however, it is a common custom to exhibit arsenic at the same time. These two particular nervous symptoms are by far more frequently associated with refractive errors than muscular ones. Nevertheless, convulsive movements and grimaces of the entire face may be caused by muscular errors, and the following case, briefly related, illustrates this fact:

A boy of 13, highly nervous and of headstrong character, had exhibited for several years irregular and almost continuous facial spasms and grimaces. His hyperopic error had been partly corrected by some one, but without materially benefiting him. I corrected his error under atropin, giving him an almost complete correction. He was so willful that it was quite impossible to make him wear his glasses all the time, and the symptoms so far from getting better, grew much worse in the course of several months. It was observed by me at the time of the first examination, that he had marked exophoria, particularly in the right eye; finally the exophoria became so troublesome and the nervous symptoms became so much more marked, that his entire face was contorted into wrinkles and grimaces. He said that these grimaces were necessary in order to keep him from seeing double; at will he could let his eyes "go" and see double, or bring the images together. His parents permitted an operation, and his right external muscle was accordingly completely divided. On the next morning he could retain single binocular vision with ease, and all his facial contractions had gone; he threw away his glasses and has never used them since. His parents informed me later that he was cured. I saw him two years afterward, and he appeared to be normal, albeit a trifle annoyed by his hyperopic error while reading.

REFLEX DISTURBANCES.

Some writers have laid much stress on gastric disturbance caused by uncorrected refractive errors. There can be no doubt that eye-strain, by reflex action, will affect the stomach; it frequently causes nausea; sometimes the nausea goes to the extent of vomiting; generally, however, it is simply a constant sickening distress, and can not possibly be appreciated by any but those who have experienced it. It simply fills one with unqualified disgust for the world.

It would be bootless for me here to review the cases in children and adults, whose gastric symptoms I have known to be relieved by correction of refractive errors. At the same time I would be understood as recognizing the fact that acute or chronic indigestion may be a causative factor in the production of eye-strain and ocular headaches, but I have always observed that in such cases there are at the same time present refractive or muscular errors, or both.

I have a case in mind in which flatulence frequently produces diplopia and dizziness, which symptoms immediately disappear the moment the flatulence is relieved. I do not doubt that this has been remarked by others. It is my firm conviction, however, that refractive and muscular errors more often affect the digestion than that bad digestion affects the eyes. The two things often react on each other, and so create a vicious circle, the beginning and end of which it is impossible to define.

I find the above symptoms as frequently among children as adults.

MENTAL AND MORAL RESULTS OF EYE-STRAIN.

I cannot let this subject pass without making some observations on the effect produced by uncorrected ocular errors on the mental and moral characters of children. When we think of the highly sensitive quality and plasticity of the juvenile tissues, particularly the brain, we can not scientifically omit to give every influence its full value. As an eye surgeon, it has been my fortune to be able to keep track of a number of boys whom I knew at school, whose qualities and characters I even then thoroughly appreciated, and whose ocular conditions I have subsequently come to examine and to know.

If I may be permitted to cite my own case, it will represent one of a type. I now know I have always carried about 1.50 D. of hypermetropia; in my very early days, possibly more. Books and school were to me a nightmare, a source of unutterable disgust. I drove myself to my tasks with the scourge of duty; I never took one moment's joy or pleasure in the acquisition of knowledge, unless it was a satisfaction of a

task accomplished or conquest gained. I have no memory of a sense of pleasure connected with my studies at school or college. The only pleasant memories I have of these periods of my life are those connected with outdoor sports or facts gained through observation, or in the lecture room through my ears; and from my boyhood I could never understand why we were forced to read from books all that we learned.

Early in life I pondered over the easiness of the task of those who never sat at the feet, but who followed in the tracks of the peripatetic philosophers. Verily, my school and college days would have been a joy to me had my ears and my distant vision been my means of acquiring knowledge. And yet, I never had a headache in my life at school nor in after years until the commencement of presbyopia. I was nervous to the point of madness at times, and the more nervous I was the more diligent I became, and the nearer I put my nose to my book. I have frequently observed that my right eye was crossed after prolonged study, or after a long written examination; this was also at times observed in my case by a fellow student. The difficulty lay in my hypermetropia, I have no manner of doubt. I had inherited a love of learning, I felt sure, and I had a right to the assurance, and my hatred of close application was a mystery to me. I created a frown by my accommodative strain, which has ever been a part of me. Prolonged application to books would be followed often by sleeplessness or violence in the field at play. I learned for these reasons the art of complete concentration, but at what an expense of nervous energy!

I can also remember a boy with remarkable mental ability who seemed to achieve his tasks very quickly and easily, but who was shy, retiring and apparently did not like study any more than I. He showed in after life 3 D. of hypermetropia, and was practically, at the age of 31, debarred from the practice of the law for a long while on account of his eyes; and then I remember a fool, as we thought him, blear-eyed as Crispinus, with red lids, and eyes within ten inches of his book, who knew nothing, who never learned anything, who never played in the field, and who early became the victim of vicious habits. Examination of his eyes later in life showed a high grade of astigmatism and distant vision, amounting to two-fifths of normal. And then I remember the myope, with head bent down, peering about, living in his books, and the world which revolved within his far-point; and the stupid myope, with no love of learning, the early victim, likewise, of vicious habits.

These things are not imagination. These boys live to me again, and I can judge them by a different standard to that I then used. If the hyperope is relieved of his strain, near eye work becomes easy and natural, and if he is intellectual by nature, he has unending avenues of pleasure and profit before him, without paying the price of learning in the coin of pain and exhaustion, and for the myope, a new and enlarged world is opened. Impressions are received at an early age that may go to the formation of his character along profitable lines. He may easily improve his physique by exercise and play, since he can see without danger and with comprehension. He will grow up straight, perhaps, without stooping shoulders, bent head and facial characteristics of his error, for he will no longer try to reach things by sticking his nose into them; they will come to him instead.

We do not observe our children enough, particularly in these respects. Many a career and many a character might have been altered by correction of refractive errors at an early age. That child that hates its books, that resents the incarceration of school, that is nervous, restless and irritable, is entitled to have its eyes examined. That child that avoids its fellows, that is always pouring over its books, that stoops and looks stupid, is entitled to have its eyes examined.

In the beginning of this paper, I cited the irregularities of the external muscular system as a factor in the results of eye-strain. I desire to make myself unqualifiedly clear when I affirm that I do not believe the irregularities of the muscular system of the eye are so frequently the cause of nervous symptoms as refractive errors. Indeed, unless the muscular insufficiency is very marked, and borders on absolute squint, I believe it has no bearing on the great majority of cases of nervous disorder. It is well known that absolute squint when it has persisted from early life causes no symptoms of itself.

Squinting children hardly ever complain of asthenopia after the double vision has been eliminated by the mental abnegation of the image of one eye. Such people are in an ideal condition of "cyclopia," if I may be permitted to coin a word. It may safely be said that in the majority of cases muscular insufficiency or imbalance adjusts itself after the proper correction of refractive errors. When it is not adjusted by this measure, operative interference is usually demanded.

Good effects from the use of prisms, in such cases, have rarely been found by me; nor do I belong to that class of eye surgeons who believe that prismatic exercise is of value; I have found this procedure of no value whatever. By constant practicing with muscles it becomes possible for one to induce a weak muscle to overcome a very high grade of prism. In this manner, the minds of the surgeon and the patient are often led to a false conclusion. If any benefit has been found to follow this method of treatment of muscular insufficiency, it has been due, I believe, to the refractive correction, and the other treatment which has been employed at the same time.

I would like to put myself on record as stating the opinion that it is the small refractive errors, rather than the large ones, which produce nervous symptoms. And this applies as well to those cases in which it is possible for the eye to overcome the error, as to those in which it is not. I have rarely seen nervous symptoms follow 3 or 4 diopters of hypermetropia. It is the errors ranging from one-half to two diopters which produce the symptoms in hypermetropia. Of course, in astigmatism and myopia, the eye can not correct its own error. The small errors of refraction, I think, may be likened to the straw that breaks the camel's back, or, more properly still, the farthing-weight which the camel invariably resents. I believe that these small errors more frequently precipitate nervous symptoms in those of exceedingly nervous organization and neurotic temperament, but I distinctly, likewise, can affirm from my own experience, that I have known refractive errors to throw into imbalance the nervous system of strong and well-regulated men.

As a source of peripheral irritation, eye-strain has been overestimated by some, but has been underestimated by more.

There are, then, in my opinion, three factors in eye-strain which are the result of refractive errors:

1. The accommodative effort which at times degenerates into spasm.

2. The spasm which is the frequent result of the

fruitless attempt on the part of the eye to overcome astigmatism or myopia.

3. The mental confusion and psychic perturbation which ensues when an imperfect image persists on the retina.

CONCLUSIONS.

1. Nervous symptoms of a variety of kinds occur as the result of eye-strain.

2. Eye-strain is due to refractive errors, to imbalance of the external ocular muscular system, or, more frequently, to a combination of the two.

3. Of these two, the refractive errors are by far the more frequent cause.

4. Muscular imbalance alone may cause it.

5. Headache is by far the most common nervous symptom in children, caused by eye-strain.

6. The headache is chronic or induced directly by near work and is generally in the forehead or temples.

7. Migraine or hemicrania, due to eye-strain, is comparatively rare in childrn.

8. Any nervous symptom in children should arouse the suspicion of ocular defects, either as the direct or a contributory cause.

9. The refractive correction should be made under atropin.

10. Muscular defects are secondary to the refractive, and should be corrected only in certain cases.

34 West Thirty-sixth Street.

CONGENITAL OCCLUSION OF THE LACHRYMAL CANAL

AND ACUTE CONTAGIOUS INFLAMMATIONS OF THE CONJUNCTIVA IN CHILDREN.*

JOHN E. WEEKS, M.D.
NEW YORK CITY.

I have endeavored to write in a more or less general manner of the acute contagious inflammations of the conjunctiva that occur in children, prefacing my remarks on the subject by a brief allusion to a perplexing condition that sometimes confronts the pediatrist. I refer to congenital occlusion of the lachrymal canal.

Shortly after the secretion of the lachrymal fluid begins (from three to eight weeks after birth), one or both eyes become suffused with tears and some flakes of mucopus appear in the conjunctival sac. Pressure over the lachrymal sac may cause the escape of a minute quantity of pus from the sac. Accompanying this appearance of mucopus, there is little redness of the conjunctiva, but no marked swelling, nor is there any marked swelling of the lids. The presence of the secretion excites the concern of the parents, and the physician is called.

This condition is often mistaken for acute contagious conjunctivitis, and it requires careful observation to avoid confounding the two. Treatment, if at all irritating, rather tends to increase the difficulty than to cause it to subside, and the persistence of the affection becomes somewhat alarming. The disturbance to the child is very slight. If during the continuance of this condition the cornea should become abraided, infection of the latter may result.

TREATMENT.

The treatment should be extremely mild and should consist simply of cleansing the conjunctival sac with a solution of boracic acid two or three times daily, and in protecting the skin of the lids by the use of some bland ointment. No attempt should be made to open the lachrymal canal by the passage of probes or in any other way until Nature has been given a fair opportunity to establish the passage. The patency of the passage will become established in from two to six weeks in a large percentage of the cases. If after the lapse of two months the passage is not free, a canaliculus may be slit up sufficiently to permit the passage of a small lachrymal probe (Bowman's No. 4 or 5) and a probe passed through the obstruction. A single passage of the probe is usually sufficient. A solution of boric acid should now be syringed into the canal by means of a lachrymal syringe to determine the patency of the canal.

It is very evident from the nature of a case of this character that measures for the protection of other members of the family or of the other eye, if one eye only is affected, are unnecessary.

ACUTE CONTAGIOUS OPHTHALMIAS.

The acute contagious ophthalmias to which children are subject are those which are developed as a consequence of infection from the pneumococcus, the Koch-Weeks bacillus, the gonococcus, and the Klebs-Loeffler bacillus.

DIFFERENTIAL DIAGNOSIS.

The clinical picture as a result of infection from the first two micro-organisms mentioned is that of mucopurulent conjunctivitis; a purulent conjunctivitis is the characteristic clinical picture of infection by the gonococcus, and a membranous conjunctivitis is the characteristic clinical picture of the infection produced by the Klebs-Loeffler bacillus. All of these forms of conjunctivitis are contagious, some to a much greater degree than others, and since this is the case, a safe rule to follow in treating cases of acute conjunctivitis is to isolate, or to virtually isolate, the patient as soon as secretion occurs as a result of acute inflammation of the conjunctiva. This rule may be carried further to the length of continuing the isolation until the discharge has entirely disappeared.

A pneumococcus conjunctivitis is indistinguishable clinically from a Koch-Weeks bacillus conjunctivitis. On the whole, a conjunctivitis produced by the latter cause is considerably more severe than that produced by the former. A differential diagnosis is possible only on examination of the secretion with the microscope, but the necessity for differentiating between the two is really not great, as the treatment is very nearly the same and the results are almost always benign.

It is well known that the pneumococcus requires a soil especially favorable for its development, and that individuals who do not present a favorable soil may have the pneumococcus in the conjunctival sac without a conjunctivitis; but when the small bacillus of acute contagious conjunctivitis (Koch-Weeks) is in question, the conjunctiva on which the bacillus falls, whatever its condition, is sure to become affected. These remarks also hold true in regard to the gonococcus. The Klebs-Loeffler bacillus holds the same relation to the mucous membranes of the body as does the pneumococcus, the frequency with which it may produce its pathologic manifestation being perhaps less than with the pneumococcus.

Acute conjunctivitis as a result of the pneumococcus

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* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

may be epidemic in small localities, but it never, so far as my observations and investigations have been able to determine, produces widespread epidemics. Occurring in families, one or two individuals may be affected; frequently one only. Occurring in residential schools, a few of the inmates may be affected. This relatively slight tendency to spread is due in all probability to the necessity for a favorable soil, as before mentioned.

Conjunctivitis due to the small bacillus is very apt to affect all the members of a family and, occurring in residential schools, is apt to affect the greater number of inmates; perhaps all of the inmates, unless isolation measures are instituted. This form of conjunctivitis may become widely epidemic, affecting the inhabitants of large sections of the country.

Gonorrhea of the conjunctiva can become epidemic in localities, as in institutions where numbers are massed together in residential schools, barracks, etc., but it can not become epidemic in communities. When gonorrhea of the conjunctiva occurs in children, whether in a family or in asylums or residential schools, it is desirable to ascertain, if possible, the source of infection, and it is incumbent on the physician to examine any urethral or vaginal discharge occurring in boys or girls. I once observed an epidemic of gonorrheal conjunctivitis affecting twenty-two of the inmates of a residential school for girls. Examination disclosed the fact that a number of the girls were suffering from a gonorrheal vaginitis.

Diphtheria of the conjunctiva, while contagious, is probably never epidemic.

All of these affections vary greatly in degree of severity. It is possible that an acute conjunctivitis due to the pneumococcus or the Kochs-Weeks bacillus may be so severe as to be confounded with a conjunctivitis of gonorrheal origin. It is possible that a gonorrheal conjunctivitis may be so mild that it may be mistaken for an ordinary mucopurulent conjunctivitis, but the secretion for this mild case will possess the power of producing in another eye a gonorrheal conjunctivitis of the most severe type. It is possible that gonorrhea of the conjunctiva may reach a degree of severity which would cause it to be confounded with diphtheria of the conjunctiva.

Acute mucopurulent conjunctivitis due to the pneumococcus or to the small bacillus is devoid of danger to vision except in an extremely small percentage of cases, while gonorrhea and diphtheria may cause great damage to vision in a large percentage of cases. The making of a true diagnosis not only gives one an idea of the contagiousness of the affection, but it also gives one knowledge of the proper measures to be employed in the treatment and makes it possible to form a correct prognosis. For these reasons, if any uncertainty exists regarding the kind of conjunctivitis, a microscopic examination of the secretion should be made.

Different forms of treatment are necessary for all of the different varieties.

In the mucopurulent conjunctivitis due to the pneumococcus, the milder cases recover within a few days if ordinary cleanliness is observed. It is well to have the eyes cleansed with a 3 per cent. solution of boracic acid every one or two hours, or sufficiently frequently to remove the secretion as it forms. The application of cold to the lids in the acute stage is sometimes gratifying to the patient.

RATIONALE OF MOIST COLD APPLICATIONS.

In considering this matter, it is well to bear in mind the thermal conditions under which the pneumococcus, Koch-Weeks bacillus, gonococcus, and Klebs-Loeffler bacillus develop. The thermal range of development of the pneumococcus is between about 55 F. to 110 F.; of the Koch-Weeks bacillus and the gonococcus, 88 F. to 110 F.; of the Klebs-Loeffler bacillus about the same as the pneumococcus. The object of cold applications is really to inhibit the growth of the specific micro-organism. This can be accomplished in the cases of conjunctivitis caused by micro-organisms that do not develop below 88 F., as by cold applications the temperature of the conjunctiva may be reduced, approximately, to 92 F. In cases due to micro-organisms that develop readily below 92 F., cold does little good.

APPLICATION OF MOIST HEAT.

Moist heat applied to the lids can not be employed to raise the temperature of the conjunctiva above 110 F., seldom above 102 F., consequently it is of no value as an agent to inhibit the growth of the micro-organisms concerned. It is only of value to assist in disposing of effete material, plastic or otherwise, which may be present in the tissues by rendering the flow of blood and lymph more free.

GENERAL TREATMENT.

In pneumococcus conjunctivitis, cold applications, when applied, should be made for from one to two hours at a time with intervals of from one to three hours, as desired. In these cases, if severe, a solution of a salt of silver in water (protargol 10 per cent., or argyrol 20 per cent.) should be dropped into the eye two to four times daily. When the subacute stage is reached, the protargol and argyrol should be discontinued, and, in addition to the cleansing of the eyes with boracic acid solution, an application of nitrate of silver (0.5 per cent.) may be made to the conjunctiva once daily if required. Experience has proven that protargol, and to some extent argyrol, leave the conjunctiva in a slightly thickened condition if their use is persisted in long after the acute stage has subsided, and that some other astringent, particularly the nitrate of silver, will cause the conjunctiva to return to a normal condition very much more rapidly.

The conjunctivitis due to the small bacillus requires similar, but more energetic treatment. Cold applications are positively indicated in the acute stage. They should be made for from two to three hours at a time, the interval between periods being from one to two hours. The cleansing of the eyes must be performed more frequently and the solution of silver salts also used more frequently.

In the conjunctivitis due to the gonococcus, similar measures may be employed in a somewhat more vigorous manner. The solution of protargol should be 15 to 20 per cent., and the solution of argyrol 30 to 40 per cent. The solution used should be freely dropped into the eye every two hours in severe cases during the acute stage, somewhat less frequently in the milder cases. Cold applications should be made for a longer period of time and the intervals should be shorter. The tendency of the lids to become glued together may be combated by the introduction of borated vaselin (5 per cent.) or bichlorid vaselin (1-3000 to 1-5000) into the conjunctival sac three or four times daily. The conjunctival sacs should be cleansed with a solution of boric acid sufficiently frequently to keep them free from secretion. In addition to this, the urethritis or vaginitis that may exist must also be treated.

The results after treatment of this kind in gonorrheal ophthalmia occurring in children is almost always satisfactory. Corneal ulceration may be obviated in perhaps 95 per cent. of the cases.

In diphtheria of the conjunctiva the treatment is altogether different and consists in the early administration of diphtheria antitoxin in sufficiently large dose and sufficiently often repeated to cause the membrane to disappear and to bring about rapid amelioration of the symptoms. In addition to the use of the antitoxin, cold applications may be made for two hours at a time with intervals of one hour during the acute stage, should they prove agreeable to the patient; they will have little influence on the course of the disease. The eyes should be cleansed frequently by means of boric acid solution. Accompanying nasal or faucial diphtheria should, of course, receive attention.

In diphtheria of the conjunctiva, the results depend entirely on the stage of the disease at the time of the commencement of treatment. While diphtheria of the eye before antitoxin was known caused destruction of the cornea in perhaps 95 per cent. of the cases, it is now possible to prevent any affection of the cornea in almost, if not quite all, of the cases by the proper use of antitoxin, provided the patient comes under observation before the cornea is involved. If ulcer of the cornea is already present, its progress may be arrested within twelve or twenty-four hours, and the damage done can be materially limited.

DISCUSSION

ON PAPERS OF DRS. CLAIBORNE AND WEEKS.

DR. ARTHUR G. BENNETT, Buffalo, N. Y., indorsed Dr. Claiborne's remarks about the apparent stupidity of school children who are suffering from errors of refraction. In connection with Dr. Burrows, he examined all the pupils of the truant school in Buffalo. There were 66 pupils, and the great majority had marked defects of vision. Three had strabismus. He told the principal of the school that it was the absolute duty of these children to play hookey. The nervous strain was greater than they could carry. The result of treatment in these cases was very satisfactory, excepting in those who were mentally deficient. The majority were much benefited by proper correction of the defective vision. Dr. Bennett has recently seen three very pronounced cases of cyclic vomiting. In one he discovered a very grave error of muscular balance, the correction of which by glasses gave marked relief. In this case the child was nervous and undersized. In another similar case an absolute cure followed the correction of a small degree of compound hypermetropic astigmatism. In this case the vomiting had recurred every two months for two years, at least. In the third case, which was lost sight of, he discovered by objective measures 2 D. of hypermetropia. At the Craig Colony for Epileptics, although only one case was apparently cured by correcting the errors of vision, the number of attacks in the aggregate was materially diminished. Dr. Gould and Dr. Bennett examined 100 patients in five days, and the work could not be satisfactorily done in so short a period of time. Dr. Bennett believes the statistics showed a reduction of 35 per cent. in the number of attacks for one year. Certainly the patients in whom the attacks did not stop were made much more comfortable. He doubts whether true epilepsy is ever cured by eye treatment, but believes that many of these patients are made more comfortable by correcting the errors of vision, and a certain number, in which there is an epileptiform condition, which is many times regarded as true epilepsy, are absolutely cured.

DR. ISAAC A. ABT, Chicago, asked Dr. Claiborne at what age he would correct refractive errors. Parents are often conscious of these errors of vision in their children, but they usually prefer to postpone treatment until the child is old enough to go to school.

DR. SAMUEL J. WALKER, Chicago, has seen numerous cases which would probably be described as cyclic vomiting, but he has never seen a case of what he could call by that name. The cases he had in mind were always associated with other features, such as loss of appetite, disinclination to play, marked depression, and in some cases even a stuporous condition; these symptoms practically always preceding the vomiting by from six to twenty-four hours. Several years ago in a paper on migraine he gave it as his opinion that cyclic vomiting, so-called, is in reality an atypical form of migraine; and in the discussion following the paper, several men agreed with his view of the question. His experience with such cases since then has tended to confirm that view. We all agree that all abnormal conditions should be corrected, and that errors of refraction and any other abnormal state will precipitate attacks of epilepsy or migraine, or serve to make the attacks more severe in character, but that refractive errors can be a fundamental cause of epilepsy or insanity, is in his opinion not tenable.

DR. HERMAN JARECKY, New York City, said that at the Manhattan Eye and Ear Hospital and in his clinic at the Sydenham Dispensary, so far as he could see, in no case was the chorea cured by correcting the eye errors. In these cases there is apparently a lack of general muscular balance; the whole system seems to participate in the condition. The child should be taken away from school, given proper tonics, etc. He should insist on refraction in every case where the error is at all marked. In those cases where the error is slight, it may be allowed to go uncorrected, and the majority do not require glasses. It is a serious question to put glasses on very young children, and while he does not hesitate to put them on, yet in those cases of astigmatism where the error is slight, he believes it should be corrected until the child's general condition improves under the combined influence of systemic treatment and the use of proper glasses. Then the glasses should be discontinued in a number of cases, and if there is further weakness shown, the errors can again be corrected. He has never seen epilepsy or insanity improve after the correction of eyestrain. He has seen certain cases of chorea helped by attention to the eyes, but the general care of the choreic will depend on the pediatrist and not on the ophthalmologist. While in a certain number of cases glasses must be worn all the year round, he never insists on their use during the summer months, when the children are romping in the country.

DR. CHARLES G. KERLEY, New York City, asked Dr. Claiborne how many cases of cyclic vomiting he has relieved by correcting refractive errors.

DR. J. H. CLAIBORNE, in replying to a question, said that he has not seen a great many cases of cyclic vomiting, but has come to regard it as an exceedingly difficult condition to cure. He also looks on it as an atypical form of migraine. The only suggestion he makes in regard to these cases is that the possible coexistence of refractive errors should be borne in mind, that they be completely corrected under atropin when found, and that careful records of those cases be kept, and a subsequent report made regarding them. Dr. Claiborne has never seen epilepsy cured by the correction of refractive errors. He believes that the effect in such cases is a distinctly moral one. Couple personal magnetism with a bloody eye and a distinct impression is made on the nervous system. He usually takes glasses off children during the summer. Eyes have much to do with the nervous system, but not everything. When the children return to their lessons in the fall glasses should again be worn, and in cases of myopia or astigmatism they should not even be removed during the summer. He has never seen a child injured by breaking its glasses.

War Prices on Drugs.—Alcohol, carbolic acid, picric acid, anise seed, cinnamon bark, ergot, camphor, menthol and lycopodium are mentioned by *Meyer Bros.' Druggist* as affected in price because of the war. It is stated that a barrel of alcohol is consumed every time a thirteen-inch gun is discharged. Carbolic acid and picric acid are necessary ingredients in the manufacture of modern high explosives.

PROPHYLAXIS.

ITS VARIOUS PHASES IN RELATION TO CONSERVATION OF THE TEETH.*

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I want to make a broad distinction between reparative and restorative operations, and to weigh relatively the importance, from a tooth-saving point of view, of some prophylactic measures.

Broadly speaking, prophylaxis, the prevention of disease, should be the highest aim of the physician. In our specialty of medicine we are nearer, perhaps, concrete facts than the general practitioner; the organs that furnish us our principal work are in sight and lesions are generally visible and within reach, and possibly it is not asking too much of the average patient to expect more of us in the way of prevention than in the warding off of disease by the family physician. Certainly if we do not accomplish quite as much, we are very culpable.

Prophylaxis is prevention—prevention of what? Not simply the loss of teeth by caries, nor added to it the loss of few or many teeth by pyorrhea, but it means the prevention of the loss of the full comfortable use of thirty-two teeth through the whole or main part of possibly a long life. I do not think this at all a too high ideal to have before us. At present, in a large majority of cases, we certainly will not reach to this standard.

The great controlling factor in relation to immunity or non-immunity from caries has reference to the condition of the secretions of the mouth. We are now in the early stages of our examinations in the histo-chemistry of the saliva, and though we have a limited knowledge of the conditions making for decay, we are as yet unprepared and unable to change those conditions to one of immunity. Often we will not have the complete support of the patient in the matter of hygienic cleanliness, without which we are powerless to accomplish the best results; and it will also generally be impossible for any one person to have the consecutive management of many mouths extending over a series of years dating from childhood, without which the best services can not be rendered.

Still, prophylaxis is steadily gaining; hygienic cleanliness is being more and more insisted on by the dentist and more and more practiced by our patients, and this greatly offsets environment. With better modes of treatment and a more careful living up to the high ideals of Nature, we have every reason for encouragement.

The high standard of success here outlined in the salvation of the teeth involves of necessity a knowledge of the perfection of the normal conditions of the tissues and organs of the mouth; this in the environment of the teeth, in the teeth themselves and in their arrangement, and in the relation of the teeth of one jaw to the teeth of the opposing jaw.

I have placed at the head of these phases of necessary normal conditions that of environment; and yet if I am asked to describe what I consider a normal environment, mainly, of course, with reference to the juices of the mouth, I can only say I can not tell. So far the chemical constitution of what may be called normal saliva has, to my knowledge, never been described and I think can not be; that is, in its exhaustive and ultimate analysis within the varying limits of what still may be termed normal.

We occasionally hear of the rare case of an aged person who has never been to a dentist and who never has lost a tooth, and very, very much more rarely we meet such a person, but in what respect the saliva of this *rara avis* has differed from the mouth secretions of the ordinary individual we do not absolutely know.

We do know that Dr. Michaels (to whose investigations in the histo-chemistry of the saliva I will shortly refer) found that a hypo-acid condition of the saliva was generally associated with rapid destruction of tooth tissue, and the hyper-acid condition was associated with comparative immunity from decay. The researches of Drs. Kirk, Kyle and others confirm those of Dr. Michaels. We know also that the immunity from caries in the rare cases I have referred to has not been as the result of extraordinary cleanliness. The deduction seems obvious.

The researches of Black, Williams and others have proved to us that, in the main, the physical conditions of the teeth of different individuals of adult age are substantially the same, and the facts that are before us every day, showing the wide difference of conditions of tooth preservation, all point to a cause for tooth destruction outside of the teeth themselves; this means, of course, in their environment, and this is now universally recognized.

In August, 1900, before the Third International Dental Congress, Dr. Michaels of Paris read a paper on "Sialo-Semeiology," which was a record with deductions therefrom, of a long series of examinations and analyses in connection with the histo-chemistry of the oral secretions. The limits of my paper preclude even a résumé of this paper, but he clearly proved the intimate relation of immunity from caries with certain conditions found in the saliva, and he found radically different conditions of the saliva where caries in a mouth were rampant.

Though by no means exhaustive, Dr. Michaels' investigations were most carefully made, and his results and deductions have been amply confirmed by other investigators.

To quote a truism of medicine put in simple words: "It is a well-known clinical and laboratory fact that a study of the products of the secreting organs, which in their excreting functions throw off waste material, gives us by deduction a fair idea of what process is going on within the body." This being true, why, as an index of systemic condition, would not the study of the saliva give as good an idea as the study of the urine, especially as the latter is solely a waste product, while in the saliva, swallowed as soon as excreted, we have products of metabolism which return into the system as a part of a physiologic process?

The bearing of all this on tooth destruction is, of course, even more intimate than I have suggested above in connection with general systemic conditions, for the teeth are bathed in the secretions of the mouth and are exposed continuously to the fermentative and bacterial results of their environment.

The present relation of prophylaxis in this connection is as follows: We know the distinctive condition of the saliva, as found by Dr. Michaels and others, when related to rapid decay of the teeth; we know another distinctive condition of saliva seemingly always associated with immunity from decay; but I am afraid to

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

say that as yet we know how to influence nutrition to that point that we can change the one undesirable condition to the one that means tooth preservation.

The study of the histo-chemistry of the saliva is one involving organic chemistry of the most intimate nature, and requiring an immense amount of laboratory detail and the study of formulæ and analyses requiring any amount of time. The advance already made is very great, and the introduction of the micropolariscope, according to Dr. Kirk, is a most valuable aid. To know the actual condition from which we require relief is a great point gained.

Drs. Kyle, Milligan and others, in connection with hay fever, ozena and diathetic and nervous diseases of various kinds, have gathered diagnostic indications from the saliva that have secured successful treatment and have proved to them of the greatest professional value. We are pointed in the right direction, with a solid substratum of facts to work up from. Laborers in this field are very necessary, and the reward, how to help secure immunity from caries, is the greatest that can be put before the dentist.

We can not conceive of any period when absolute hygienic cleanliness in the mouth will not be necessary, but up to that time in the future when we shall be able to change by treatment the destructive character of the mouth secretions, this same hygienic cleanliness, as advocated and practiced by its well-known exponent in Philadelphia, is, and will be, our best sheet anchor for the preservation of the teeth. So much has been written by him, and his principles and practice are so well approved by the profession in the main, though not in all details, that it would be supererogatory for me to add any words.

Normal occlusion, that is, occlusion as opposed to mal-occlusion, as described so well by Dr. Angle in his record work on "Orthodontia," is a very necessary factor in prophylaxis. The knuckling up of the several teeth against one another, thereby securing for each tooth under stress the support of all the teeth of the arch, is most necessary and most helpful, and is provocative of comfort and tooth preservation. Now, when we add to this the perfect normal relation of the teeth of the mandible to the teeth of the upper jaw, that perfect relation of the planes and cusps of the teeth of the two jaws to one another, we have an ideal arrangement, a perfection of mechanical adaptation and artistic lines better than which we can not conceive of; so, when we have before us a case of mal-occlusion to correct, it is this perfect ideal we must try to work up to, and we must always remember that the Almighty found thirty-two teeth none too many for the purposes of his perfect work, and it is not at all likely that we can do as well with less.

Now, the practical application of this matter of normal occlusion to prophylaxis lies in the interdependence of one tooth on another, as mentioned above. It lies in the fact that each tooth in a normal arch is necessary to the best welfare of every other tooth, and that you can not remove one tooth without injuring all. The natural tendency of the back teeth, in the absence of mesial support, is to move forward, and unfortunately that tendency is not to move *en masse*, but to follow the line of least resistance and seemingly pivot on the ends of the roots, the crowns tilting, with the effect of not only destroying to a great extent the mutual support of adjoining teeth, but also destroying more or less that perfect relation of the teeth of the two jaws to one another.

All irregularities of the teeth, and especially all losses of teeth, are provocative of further trouble. The proper interdigitation of the cusps of the teeth of one jaw in the sulci of the teeth of the opposing jaw is interfered with, the area of masticating surface is reduced, and what remains is usually not in as good condition for service. Some of the teeth no longer have the stress of use along the line of the axis of the roots, and the tilting continuously increases. The mal-occlusion affects also certain teeth that otherwise would be in normal health by putting on them unusual strain, and that strain in a direction the teeth are not expected to bear, with the result of loosened teeth in diseased sockets. The tendency of all such mal-occluded teeth is to get lame and loose and to be early subjects for pyorrhea, and in the end the forceps. Teeth irregularly placed in the jaws are difficult to keep clean, and are much more prone to caries, and in more ways than I have time to speak of mal-occlusion tends to tooth loss. Proper occlusion, especially when attended to early in life, is an eminently important factor in prophylaxis.

Tooth loss is mainly occasioned by departure from the high ideals established for us by Nature. The teeth, generally erupting with normal shapes and with normal structure and physical conditions, are, by reason of perverted environment, subjected to caries. Caries generally means repair and, in the fullest sense of the word, should mean restoration; and it is this in many cases incomplete repair and hardly at all restoration that is a great cause of tooth destruction. To give a broad generalization in one short clause, we should live up to Nature.

All of these many years, in which we have made so many and great advances as a profession, we have been handicapped by the fact that we have had no filling material that was at all ideal. Amalgam, tin, gutta-percha, cements, have all done us great and good service, and above all gold. The latter is a royal metal, and has done our patients a royal amount of good, but restoration has been a restoration of contour only; not a restoration of color and appearance; not a restoration of thermal non-conductivity; not a restoration of the vitreous polished enamel surface which is of such immense importance; and this lack of restoration has generally been at the expense of serious distress to our patients; often of serious physical and nervous strain to the operator. Drs. Varney and Webb, and others as well, practically gave their lives to establishing their high ideals of tooth restoration, and then their ideals failed in the above-mentioned serious respects. All glory to them, however; they were in advance of their fellows, and we are greatly better dentists by having had their ideals to work up to.

Now the relation of all this to prophylaxis lies in the fact that in just these important matters in which tooth restoration fails with gold, it is a success with porcelain. The vitreous polished surface, practically continuous with the enamel surface, the non-conductivity of the material, its comparative ease of insertion at an immense saving of time, pain, and nervous strain, are all important respects in which the prophylactic value of porcelain transcends that of other materials.

Again, I can not go into details, but it is entirely practical in the great majority of cases to fill the occluso-proximal cavities of the bicuspid and molar teeth with porcelain, at a great saving of strain and pain to the patient, with a perfect restoration of contour made in

the furnace and not in the patient's mouth. Some of you, I fear, will dissent from this statement, but I want to go on record as saying that it is practical, and that such restorations, if properly made, will be permanent.

For the sake of brevity, I have instanced only occluso-proximal cavities because they are, possibly, the most difficult and the necessities of such cases are greater, but the principles involved are the same with all proximal fillings, and the essential saving conditions are just as evident.

The last few years have developed an immense amount of literature on prophylaxis, but it has been of the narrow kind that has seen but one phase of the subject, and for that has claimed the earth. All of you know that prophylaxis is many sided—has, indeed, many more sides than I have had time to indicate—and that though hygienic cleanliness is one phase, and that a very important one, it is still not all there is that stands for the prevention of the loss of the teeth.

The investigations of Michaels, which include an immense amount of painstaking laboratory work, have opened up a field of activity whose promise is very great.

In the language of the very reserved and modest claim made by the eminent editor of the *Dental Cosmos*. "Dr. Michaels has thrown a ray of scientific light on the problem of dental prophylaxis and has clearly indicated the direction from which greater light on the problem may be expected to come."

Dr. Angle in his great work on mal-occlusion has treated his subject in a scientific manner quite beyond anything hitherto attempted, and in the simplicity of his classification and in the clear idea he has given us of the ideal we are always to work up to, with methods and apparatus most simple of use, has given the profession great aid in treatment, which in so many cases makes for prophylaxis.

To this should be added a word of tribute to the enthusiastic and earnest labors of Dr. Jenkins, stretching over many years and all to the end that tooth structure might be imitated and that tooth repair might mean tooth restoration in the fullest and best sense of the word.

Other names could be added to this brief list, but these I have mentioned seem to me typical of the best, in that they have obtained their important results only because of great labor, backed up by most earnest enthusiasm.

It is such enthusiasm that in the end will conquer for tooth salvation. It is such enthusiasm that always conquers.

43 Montgomery Street.

CHANGES IN THE SALIVARY SECRETION, AFFECTED BY SYSTEMIC DISEASE.*

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Compared to other subjects of interest to the stomatologist, only a few papers of practical value have appeared on this subject as yet. Various experiments, and conclusions drawn therefrom, are scattered throughout medical literature, but these are of no great practical value, as the investigations were carried on at different times, under varying conditions and on different subjects.

The task which the writers have undertaken is to study the saliva in a number of systemic diseases under as analogous conditions as possible, which is rendered more difficult by the fact that the literature existing on the subject is so little congruous and the results so far obtained are at a great variance.

more difficult by the fact that the literature existing on the subject is so little congruous and the results so If investigators do not agree on the modifications of the salivary secretion in so ordinary a condition as a febrile disturbance, how much more lacking in unity must be the results of investigations of the oral fluid in chronic affections which present so many different phases and aspects.

The conclusions of this paper are the results of investigations which were carried on under as uniform and congruous conditions as possible concerning the saliva in: *a*, diabetes mellitus; *b*, uricacidemia; *c*, gastric disease.

It is not our intention to enter into the details of this vast subject, as time is limited, but we simply present the results of certain examinations, which will be fully described and published in various journals at a later period.

Before studying the salivary secretion as it becomes modified by systemic disease, it is, perhaps, not out of place to define normal saliva.

Saliva, in the strictly physiologic sense of the word, implies the secretions of the parotid, the submaxillary and sublingual glands. Ordinarily, however, the term denotes the aggregate secretions of all the glands pouring their contents into the buccal cavity; the sum total of all these secreta shall be spoken of as saliva in this paper, as it is impossible to obtain saliva in that condition in which it is secreted by the salivary glands proper, and before it becomes admixed with the other fluids and factors introduced into the mouth.

In order to collect any amount of saliva for measuring or examination, it becomes necessary either to introduce a sponge into the mouth to collect the fluid, or to instruct the subject, from whom the sample is to be taken, to keep the mouth open for some time, without swallowing, so as to permit the secretion to accumulate. Anything or any method that may be employed to collect the saliva directly, will act as a stimulant to the gland, by contact or reflexly, and when nothing is employed and the mouth is simply kept open, the muscular exertion of keeping the jaws apart, the air striking the oral mucous membrane, as also the psychical influence, will act as stimulants, and the saliva obtained is not true physiologic saliva, but saliva obtained by stimulation; hence the output of the gland is augmented and more fluid is obtained than would be secreted without the stimulant. However, as the fluid medium is but water, and the chemical factors and active principles are held in solution or suspension therein, it will facilitate matters, by only considering these organic and inorganic constituents of the secretion, irrespective of the solvent medium, and to define physiologic normal saliva as:

"The total amount of organic and inorganic material, elaborated and secreted by the salivary glands under normal conditions, i. e., without undue stimulation by either drugs or other factors, irrespective of their fluid medium and without the admixture of excessive amounts of histologic elements."

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology and approved for publication by the Executive Committee: Drs. E. A. Bogue, Allee M. Steeves and M. L. Rhein.

Under normal conditions but varying diet, the glandular cells may be taxed to perform varying amounts of work, for the ingestion of large amounts of soluble, assimilable elements which enter the blood current may be followed by an increased output of salivary solids. As long as the system retains perfect metabolic equilibrium, and as long as no local disease obtains in the salivary glands, it does not matter how large the excretion of solid matter may be. The greater the amount of the solvent medium, up to a certain limit, the more perfect may be the excretion. However, it will always remain an open question whether the salivary solids should be completely excreted, or if a residue in the gland, of the same composition and concentration, is normal or not.

The variations that the saliva may be subject to in health may either be a change in the quantity secreted or an alteration in the composition. In order to ascertain any deviation from the normal, it becomes necessary to establish a standard as normal.

The actual amount of saliva secreted during twenty-four hours has been expressed in varying figures by different authors. However, as the activity of the glands is modified by many conditions, all of which must be considered normal, as diet, amount and nature of ingesta, the manner of eating and masticating and also the psychic condition of the subject, and as all these factors do exert a positive influence on the organism and actually modify the secretion, and as it is impossible to have all these conditions congruous in any two cases, and as the results under unlike conditions must vary, figures are but relatively correct and can not be accepted as the absolutely physiologically correct standard of the amount of fluid secreted. As figures will not express the normal amount of saliva secreted, for stated reasons, it will, perhaps, be physiologically correct to define the normal output of saliva as follows:

"The normal amount of saliva secreted is that which is put out without artificial stimulation (by drugs or any factor that will act as an irritant to the gland directly or reflexly) without the subject being aware of its secretion, irrespective of figures."

Having determined what can be called the normal output of saliva, what will be abnormal and what will be pathologic, and which can be classed as either?

Any condition beyond those productive of normal secretion will, of course produce an abnormal or pathologic action of the gland, but how to distinguish between these two, what is abnormal, what is pathologic?

"An abnormal secretion is one produced by artificial stimulation, as by drugs or any other factor producing an altered secretion."

"A pathologic secretion is one produced or altered by local or systemic disease."

Another property of the saliva that is expressed in greatly varying figures is the specific gravity of the fluid. Inasmuch as this property depends on the amount of solids contained in the secretion it (specific gravity) also is subject to many modifications, and the absolute physiologically correct standard can only be obtained by determining the amount of solids in a given amount of normal saliva.

Experiments in this direction will also appear at a later period.

To study the question of modified saliva from all points of view would necessitate an accurate quantitative and qualitative analysis of the secretion in a normal state and the same examination of the fluid as secreted in disease. To do this at the present is impossible, as the glandular activity and the secretion itself are subject to many and rapid changes, so that no two examinations would show like results. Therefore, we confine ourselves to the study of such eventual alterations of the oral fluid which are not accidental and thus may become of practical value to the medical and dental diagnostician.

ALTERATIONS OF THE SALIVARY SECRETION IN DIABETES MELLITUS.

The saliva of 158 cases of diabetes mellitus was examined; altogether 384 tests were made, from which the following data were obtained:

Alterations of the Quantity Secreted.—The amount of saliva was found to be decidedly increased in 6 cases, decidedly diminished in 89 cases, normal in 63 cases.

The subnormal secretion was very likely due to the same causes as is the diminution of the secreta of other glands in this disorder, namely, the increase of the urinary water.

In making these quantitative examinations, the samples were always obtained about two hours after breakfast (except where otherwise stated). In order to avoid any secretory changes due to psychical influences, the patient was requested to expectorate into a watch glass, while being engaged in conversation. This was measured by a standard obtained by taking many hundred samples in the same fashion from healthy individuals. If the patient could not bring forth but a few drops of saliva after repeated efforts, the secretion was called decidedly diminished; if, on the other hand, the amount expectorated would fill or flow over the watch glass, it was termed decidedly increased.

The Reaction.—Acid in 47 cases (215 examinations); alkaline in 92 cases (116 examinations); neutral, 8 cases (14 examinations); not examined, 11 cases.

The tests for the reaction were litmus paper and phenolphthalein.

ALTERATIONS IN COMPOSITION.

Glucose was found in the saliva in 85 cases (181 examinations), and no glucose was found in 73 cases (203 examinations).

The examinations for glucose were made with Nylander's solution, and with phenylhydrazin.

The diastatic quality was found unchanged in about 90 per cent. of the cases examined. A quantitative test for the conversion of amylum into maltose, glucose and dextrin was not made on account of the small amount of secretion obtained at a time.

Trommer's test was employed in these examinations; the tests were made at 40 C.

One gram of amylum was boiled with 10 c.c. of water and 10 parts of the starch solution were mixed with 1 part of saliva and kept at 40 C. To this Trommer's solution was added. If the diastatic quality of the saliva is normal, a yellow precipitate, which later turns red, is formed in from fifteen to forty-five minutes. If the changes take place in from five to fifteen minutes, the diastatic property is increased, and if it takes longer than forty-five minutes for the reaction to take place, the diastatic property is subnormal.

All the cases in which glucose was demonstrated in the saliva were of undoubted genuine diabetic character, and in those cases where glucose could not be found in the oral secretion, although it was excreted in considerable amount in the urine, the glycosuria of some was apparently of non-diabetic origin. The cases of true diabetic glycosuria, after a rigid antidiabetic diet, had been

pursued for some time, so that the urine became free from sugar, exhibited the same changes in the salivary secretion, so that no salivary glucose could be demonstrated after the urinary sugar had disappeared. This fact would evidence the common hyperglycemic origin of the glucose in both fluids. Again, the appearance of salivary glucose is by no means indicative of the severity of the diabetic condition, for the degree of the diabetic condition does not depend on the degree of hyperglycemia. The milder cases of diabetes, at least those cases of well-established diabetes not influenced by dietary regulations, are often characterized by the excretion of very large amounts of urinary and salivary glucose. The reduction of the carbohydrates often causes a secession of the sugar in both fluids. In some of the graver cases of diabetes no glucose was found whatsoever in the saliva on any occasion. In one instance more than twelve examinations were made, and salivary glucose could not be demonstrated. These are the cases where, very likely, secondary glandular changes, sclerotic in character, had taken place and where no secretion whatsoever was going on.

ALTERATIONS OF THE SALIVARY SECRETION IN URIC-ACIDEMIA.

Twenty-eight cases were observed; 59 examinations were made. These cases examined partly manifested symptoms of arthritis uritica, partly of chronic affections of the upper air passages, and partly of contracted kidney and its consequences.

The saliva was found to be increased in not one case; was diminished in only one case.

The reaction was obtained by the same tests employed in diabetics, was found to be alkaline in 52 examinations, acid in 5 examinations, neutral in 2 examinations.

The diastatic quality in but 18 examinations made was found normal 13 times, somewhat subnormal 3 times, and decidedly subnormal twice.

Biliary pigments were looked for at 14 examinations, and demonstrated but once by Gmelin's test.

Uric acid was looked for 59 times, and demonstrated in the saliva but 21 times, the murexid test having been employed.

ALTERATIONS OF THE SALIVARY SECRETIONS IN SOME GASTRIC DISEASES.

All the examinations of the saliva in gastric disease were undertaken after the diagnosis had been made and before treatment had been begun, as medication would influence the saliva both systemically and locally.

Acute Gastritis.—Twenty cases were examined.

The quantity of saliva secreted was found to be increased in 9 cases; in the others, about normal.

The reaction was found to be acid in 8 cases, alkaline in 12 cases; acidity was found to be due to lactic acid in 2 cases. Uffelmann's test was employed (modified, as it has been used in Dr. Stern's laboratory for some years; that is, salicylic acid is substituted for carbolic acid). Twice the acidity was found to be due to acetic acid (ferric chlorid test), and in 4 cases the character of the acidity was not determined.

Hyperchlorhydria.—One hundred and eighty-two cases examined gave the following results: An increased secretion was found in 27 cases; the others showed a fairly normal secretion.

The reaction was found acid in 71 cases, alkaline in 41 cases, neutral in 5 cases; amphoteric in all others, or in 65 cases—that is, the secretion was both alkaline and acid; in other words, red litmus paper turned blue and blue paper turned red.

These facts are of interest to the stomatologist, as it shows that a hyperchlorhydric stomach does not always produce an acid saliva; also is it important to always use both red and blue litmus paper in testing the reaction of a secretion, as one or the other, used alone, is liable to mislead the examiner.

The acidity was found to be due to lactic acid in 12 cases, acetic acid in 12 cases, lactic-acetic acid in 9 cases, inorganic acid (HCl) in 6 cases (Guinsberg's test); in the others it was not demonstrated.

Hypochlorhydria.—Twenty-three cases were examined.

The quantity of saliva secreted was found to be decidedly increased in but 1 case; the other cases showed a fairly normal quantitative secretion.

The reaction was found to be acid in 2 cases, alkaline in 15 cases, amphoteric in 6 cases; acidity was found to be due to lactic acid in 1 case, formic acid in 1 case.

Pyloric Stenosis.—Fifteen cases examined.

The secretion was found to be increased in 3 cases; balance fairly normal.

The reaction was found to be acid in 5 cases, alkaline in 8 cases; in 2 cases the reaction was not determined. Acidity was found to be due to lactic acid in 2 cases, acetic acid in 2 cases, lactic-acetic-formic acid in 1 case.

REMARKS.

In presenting these data, obtained from over 1,300 individual examinations, we do not claim to have brought forth anything new or startling, but have applied old principles in a new direction, and the results obtained may not be of direct value presently, but they open new avenues for investigation which in course of time may become instrumental to shed light into pathways that at present are somewhat dark, namely, the coherence or non-coherence of systemic and oral disease, what rôle the salivary secretion plays in these derangements, how it is affected by either, and the disclosure of this will entrail new, better and perhaps more successful treatment.

DISCUSSION

ON PAPERS BY DRS. ALLAN AND STERN AND LEDERER.

DR. EUGENE S. TALBOT, Chicago—So far as malposition is concerned, the extraction of a tooth or teeth has great influence on the alveolar process and the dental arch. The irregularity of the arch (other than the local causes) is due to an unbalanced nervous system. The teeth that decay the most in this country and Europe are in those persons who suffer with nervous difficulties. They are found in the insane hospitals, schools of idiocy and all institutions for degenerates. In a study of the teeth of nationalities it is found that the English lose their teeth sooner and irregularities are more common among them because evolution has gone on to a greater extent. Decay of the teeth next in frequency is in New England, and in the older parts of the country. Irregularities are also greater there than in the newer parts of this country. In pregnancy teeth decay faster; in neurasthenia the teeth begin to decay rapidly, and the same condition obtains in grief. How far the environment and the saliva have to do with this matter is a question. I believe these factors have something to do with it, but the experiments shown do not indicate the saliva has very much to do with the conditions. If the saliva be at fault, why does the decay not occur except at the approximal surfaces and the crowns? Why does it not occur at certain periods rather than others? These things must be taken into consideration in regard to the general condition of the system. I have been experimenting along certain lines to show from my standpoint why decay occurs in certain mouths more than it does in others. I believe that in disease, pregnancy and in conditions of neurasthenia there is a want of resistance in the pulp which has as much to do with decay as any other cause. It is not often that acidity of the salivary

glands takes place to a marked degree. It is unlike the urine which carries off the waste products. The saliva is a physiologic secretion for the purpose of digestion, and therefore diseased conditions are not expected to be found in the saliva of mouths where changes have taken place in the system, as in the urine.

DR. EDWARD A. BOGUE, New York City—I hope that Dr. Talbot will not regard as unfriendly anything I may say. He has been for years gathering facts. These facts we accept, but not his conclusions. In the past twenty years not a child who has ever come into my hands and stayed there has ever had the toothache or ever lost a tooth. Not only that, but during that twenty years only five adults who have been in my hands have lost a good, firm tooth. Three of these were impacted molars; one was an upper wisdom tooth and one was a right lateral incisor from a lady having an irregular row of teeth from which a number of teeth had been lost already. Dr. Talbot's remarks are so mingled with splendid truth and possible error in his statement that evolution shows loss of teeth that I can not accept his conclusions. Whether the removal of the last molar which has been so extensively practiced is going to result in Nature excluding that tooth is a question. He also says that teeth are not necessary. Perhaps that is true, and perhaps not. For the present time we may look on teeth as necessary for our healthful existence, and the better we can keep them the better it will be for the individual's health. He also said that perfect occlusion was not necessary and that what it had to do with decay of the teeth he could not see. Dr. Talbot says that the English people lose their teeth most frequently and next in frequency the New England people; and, he had just said that loss of teeth was especially noticeable in degenerates, ergo, the English people and the New England people are degenerates. That being the case, and these being the head nations of the earth, with them the whole world is degenerating. Dr. Talbot said that the loss of pulps and the destruction of the resisting power of the pulps tended toward decay. With this I heartily concur. He did not seem to know that that is in opposition to the statement of one of our profession who says that teeth do not need pulps after adult life. I also agree that prophylaxis begins as far back as Dr. Rhein has suggested, and as far back as Dr. Talbot suggests in his book, long before birth. And this brings us to Dr. Allan's paper. If the child is born in good health and has a constitution which is adequate to the eruption of good temporary teeth which perform their function in life and are shed at the proper moment and replaced by the permanent teeth in their proper position, there is no reason why those teeth should not last during the threescore years and ten almost without care. I have before spoken of a man 52 years of age who told me he had never had a toothbrush in his mouth. Yet that man's teeth were clean and in good condition. The dental apparatus was so admirably arranged for the purpose of mastication that it not only did that part of the work thoroughly, but in the very act of mastication the teeth were cleansed by the flow of the saliva and by the friction of the food taken in. When civilization came and gave us soft food instead of hard, cooked food instead of fibrous and raw food, it did us a damage so far as the teeth are concerned. I find that where the occlusion and the arches are perfect there is very little decay; and acting on that principle during these last twenty years my results have been attained.

DR. M. H. CRYER, Philadelphia—Dr. Angle and others have used a picture made from a photograph of a negro skull which indicates considerable prognathism to illustrate the typical and normal occlusion of the teeth. In my paper on "Retarded Eruption of the Teeth; Their Liberation and Extraction," will be shown a fairly good illustration of the teeth of a Caucasian, which, in my opinion, gives a better standard than this photograph of the negro. Dr. Allan spoke of the teeth moving forward in the jaws. He said the crowns move forward, while the roots do not, thus causing the tipping of the teeth. In the normal jaw where there has been but little interference with its physiologic functions, the roots will advance in the same proportion as the crowns. The cancellated tissue of the alveolar process, in which the teeth are developed and retained, moves forward in mass, but when the physiologic functions of any portion of this cancellated tissue has been interfered with by either pathologic means or mechanical appliances, then the crowns may tip forward or twist because the cancellated tissue, holding the roots, is more or less withheld.

DR. N. S. HOFF, Ann Arbor—I think the value of a perfect occlusion of the teeth is one of the most important facts that Dr. Angle has brought into prominence by his work. It has its bearing not only as a prophylactic measure but on operative procedures in filling teeth. Much injury has come to the teeth by the use of amalgams, cements, and other plastic filling materials, because it is impossible to restore the contour of the teeth with them. We all know that amalgam is liable to change form, and that cements are transitory in character. The teeth tip out of their normal positions because an incline plane is made as an occlusal surface where a cusp is the natural condition. There is but one material that can be successfully employed to restore the cusps of the teeth as they ought to be, and that is gold. Many operators prevent recurrence of decay with gold fillings which securely stop the cavity, but the occlusal surface of the tooth is put into such form that it changes its place or position in occlusion. It does not occlude in a proper manner to perform its function. Many a filling, for lack of contour, provides a condition between the teeth which favors destruction of the gum, by irritation, or perhaps ulceration, which may result in so-called pyorrhea, which is often nothing more than an inflammatory condition caused by the impact of food in the interdental spaces. The attention of the profession has not been properly called to the value of restoring the cusps of the grinding teeth to their original form for the purpose of preserving the surrounding gum tissue and also for preserving these teeth in their proper articular relations. Dr. Allan said it could be done with porcelain. I have no doubt it can in a measure be done with higher fusing porcelain, but the tendency of porcelain is to flatten in fusing and thus lose the valuable cusps. The crown surfaces are too often made without regard to their articular relations; inlays are made to conform to cavity margins only. The restoration of natural cusps is one of the most important features in operative dentistry, and I would emphasize the necessity for it because I think it is being overlooked in the present agitation for cavity extension, and in the increasing use of the plastics and inlays which are made only to accurately fit cavity margins.

DR. G. V. I. BROWN, Milwaukee—It seems to me that Dr. Lederer is in a way to reach the pith of the question. What we want to know first of all is the relation between urine, an excretory product, and saliva, that which is simply a secretion for a specific physiologic purpose. I believe that the work which Dr. Kirk has done is going to give our branch of this great profession a standing which it has never had, and I believe examination of saliva will ultimately be accepted as one of the standards of physical diagnosis. I speak of it to illustrate the broadness of this subject and to warn against using terms, such as perfect occlusion and various other expressions, that may be construed in a narrow way and misunderstood when they get into cold print. It seems to me that "typical occlusion" and "perfect occlusion" are vastly different. I have an illustration of a condition due to malocclusion pure and simple. Dr. Talbot will tell you the condition is due to degeneracy. Dr. Cryer will tell you that he can prove conclusively the influence of the want of development and the want of symmetry, and both would be right, yet we, in our treatment of the case, depended simply on correction of the occlusion. Another illustration is along similar lines and represents a case of nervous spasm, tic douloureux, cured by grinding down the teeth and removal of the pulp. Another is apparently the same condition associated with disturbance of the salivary secretion, which was markedly different from other saliva. Another condition represented is due, as we believe, to miliary tubercle, from which the patient finally died. Another is due to malopposed teeth. We ought to be particular about cataloguing such things all under one head.

DR. M. L. RHEIN, New York City—I sympathize with Dr.

Brown's desire that we should be very particular about our statements. I agree with him about the question of a perfect occlusion. I think that a perfect occlusion is too radical a remark. I have made a chemical analysis of oral secretions in a number of cases of diabetes mellitus and simple glycosuria, but I have never published the result. Dr. Lederer speaks of "salivary secretions." He has no right to make use of that term. It is saliva mixed with oral secretions and to a large extent is the secretion from the mucous follicles. I may be at fault in my criticism.

DR. BROWN—When we speak of a condition due to pathologic change of some organ or organs of the body, and undertake to show that coincident with such disease there may, by examination of the salivary secretion, be determined certain distinct pathognomonic changes in its character under chemical or microscopic study which can be recognized by reaction or the form of crystals, or in any other way as sufficiently indicative to warrant dependence in basing a diagnostic opinion, then it goes without saying there must first be accurate methods of excluding from the tests all results of mixtures with other fluids and agents in the mouth, since saliva, as we recognize it, is a mixed product, and since it is equally true that dependence in leading to diagnosis of more or less remote disease must be placed on results apparent from the true physiologic secretion of the salivary glands, and until this can be done the results must be largely influenced by oral conditions and necessarily variable.

DR. RHEIN—In order to speak of saliva, it is necessary for us to draw that saliva from the ducts or the glands as the catheter would draw the urine from the bladder before it passes through the urethra and is not allowed to come into contact with the urethral glands. The catheter-drawn urine and the ordinary urine are different. In the mouth the difference is still more marked. Dr. Lederer speaks of examining the saliva by having the patients spit. It is impossible for that to be saliva. I have devoted a vast amount of attention to the clinical observation of the fluids of the mouth, and have examined over 5,000 cases of guinea-pigs infected with tuberculosis, and the clinical observation in every one of them was identical, and it has been of such value to me that I can tell a case of tuberculosis of the lungs at once by inspection of the mouth. This is not necessarily saliva. The saliva, so far as we can judge from our clinical experience with the salivary glands, is one that is less apt to be infected by general pathologic conditions than the mucous follicles of the mouth and the other secretory organs which do not excrete materials especially for physiologic functions. Until a method can be evolved by which the secretion from the salivary gland can be examined without mixture with the other fluids of the mouth, all the statistics that Dr. Lederer has presented to us are absolutely valueless. They do not at all correspond with facts according to my observations. The very things he tells us in regard to the acidity and alkalinity in the same line of cases illustrate that there is something substantially wrong. The error lies in the fact that a great many of these cases are of acid reaction from the mucous follicles where there is likely nothing of this kind from the saliva itself. The prophylactic care of the mouth—and I prefer that term to prophylaxis, because I do not think the noun is well adapted to the purpose—has been very well presented to us by Dr. Allan. To preserve the occlusion as nearly akin to perfection as possible, it must naturally be started almost, as Dr. Bogue said, before birth. Dr. Talbot misunderstands my views in regard to the value of the pulp. I have never said that the teeth of adults would be better off without the pulp. No one appreciates the value of the pulp in the tooth more than I do. What I have said is that in a large number of diseases, especially of the arthritic and sclerotic types, when we see pulp disease inviting constant trouble, removal of those pulps is of the utmost value to the patients. I agree with Dr. Hoff relative to the filling up of the cusps so that the occlusion will be perfect. I have replaced the rubber dam many times on an operation to add to the cusps of my molars or bicuspids where I failed to get the occlusion that should be normal under such circumstances. I do, however, disagree with him when he says that only the high fusing porcelains can be used. I have too many cases of the Jenkins body that had been used in bicuspids and molars where I have absolute restoration of occlusion. There is an objection to the use of porcelain in these cases. The number of favorable cases, as Dr. Allan has outlined, is rare, because of the difficulty of obtaining the filling as near perfection as possible. I claim that when a porcelain inlay is inserted it should be so closely adapted to the margin of the enamel that the line is almost imperceptible. If that is not obtainable, a gold restoration is by far the more serviceable.

DR. VIDA A. LATHAM, Chicago—I would like to draw the attention of the section to work done by Dr. Joseph M. Flint in the *American Journal of Anatomy*, Vol. I, No. 3, on the structure of the submaxillary gland. It is one of the most profound histologic researches ever made in this connection. There are new theories, new facts, and new methods of investigation which will certainly make a great difference in our future work. He is now, I believe, at work on the second part of the contribution. I should like to ask, how much do the deposits that occur on the teeth bear on the question of salivary or oral secretions? There are cases where a set of teeth may be typical to that type of person. There has been no disturbance, when suddenly the teeth become sensitive and there is a discharge of secretion from the glands of the gingival surfaces. The condition may be due to the saliva which produces irritation. I have a case now in which a V-shaped piece is dissolved or eroded at the cervical border, and if teeth are extracted the patient is relieved from neuralgia. I simply bring this question up, because there is something in the relation of the deposits of the teeth with prophylaxis.

DR. BROWN—I have been criticised and I want to make myself clear. It seems to me that the remarks are unnecessary, because the author very clearly distinguishes between saliva of the mouth and of the glands. Until we can distinguish these differences which are due to mixture and to other conditions of the mouth, from the saliva pure and simple, we are not warranted in ascribing the condition of the saliva to constitutional diseases.

DR. RHEIN—I think it is wrong to speak of the oral secretions and claim that they are saliva.

DR. ALLAN—It is such investigations as those of Dr. Lederer, involving great labor and serious inroads on one's time, that dignify our profession and lead to practical results. In relation to the use of the word "saliva," which has been so much criticised by one of the speakers, I wish to say that there is the best of authority for such use. Gould ascribes saliva as "the mixed secretion of the parotid, submaxillary and sublingual glands and the small mucous glands of the mouth," and Gould is supported by general usage. Dr. Hoff said that porcelain restoration, such as I have referred to, would have to be made by the use solely of high heat porcelain; but, as Dr. Rhein has so well observed, it can be as well or better done by low heat porcelain and with equally good results.

DR. LEDERER—In answer to Dr. Rhein, I would say that he came in late, and did not hear the first part of the paper, therefore he can not accuse me of using a misnomer. No one has as yet made an accurate quantitative or qualitative analysis of any oral secretion, and as we can only work with what can actually be obtained in a normal condition, we must be satisfied with the mixed secretion of all the oral glands. I think Dr. Rhein is doing a great injustice to humanity at large by not telling how he is able to diagnose tuberculosis and diabetes by simple oral inspection; he is withholding a good thing, of inestimable value, from the general medical profession.

Whooping cough, a disease little dreaded by the laity and considered lightly by the profession, is as much to be dreaded because of its fatality as scarlet fever. It may cause less after-effects than scarlet fever does, but it causes enough serious after-effects to make it a disease to be avoided.—Root, in *Pediatrics.*

PNEUMONIA.

THE VALUE OF INTERNAL MEDICATION AND LOCAL EXTERNAL APPLICATIONS.*

GEORGE DOCK, M.D.
ANN ARBOR, MICH.

In carrying out the part assigned to me on this program I shall try to consider some of the more important aspects as briefly as possible. If in my efforts at brevity I lapse into dogmatism or incompleteness, I must ask your indulgence.

So long as the best method of treating pneumonia is unsettled discussion is proper and experimentation legitimate. I think we can safely assert that the best treatment is not yet established, despite the many articles claiming specific value for various methods. Of these methods it can be said that they give no greater assurance than dozens of others which were looked on in the past as perfect and abandoned as the result of further trial.

In many of the reports we can see the reasons for ultimate failure. Among them can be mentioned: 1. A belief that all cases of pneumonia are very severe and that without the treatment carried out each would run a long and dangerous course. In regard to this it is important to note that mild or abortive cases of pneumonia occur, not often, it is true, but often enough to weaken many small statistics. 2. The fact that many claims are based on small collections of cases, in which the possible errors are necessarily large, and when, as often happens, these small groups are added together the weak points are multiplied. 3. The failure to report unfavorable cases, depending on many things, especially the desire to avoid the accusation of unskillfulness of the use of an inferior preparation. 4. The use of impressions instead of objective descriptions.

There is need of further experimentation in the treatment of pneumonia along various lines, but for those who have not facilities nor inclination for this I would urge, as a fairly satisfactory plan, the treatment of the patient in the light of the natural history of the disease. As I shall outline this, there is nothing novel nor original in either principles or details.

Among the advantages of this method I place first the obligation it imposes of careful examinations in the beginning and at all times in the course of the disease; next, the familiarity it teaches with the action of various details of treatment, so that the physician can carry out promptly and with confidence such procedures as may be necessary, and from past experience recognize when the results desired are being obtained.

I shall speak only of the most important details.

THE NECESSITY FOR REST.

First I place rest, physical and mental. The possibility of a long course, or of serious complications or sequels, makes it wise to conserve all the energy possible. For mental and nervous rest, quiet, the absence of all mental effort, and sufficient sleep, are essential. Regarding the mind, I find it useful to follow the principle that every pneumonia patient is delirious, even when, as we so often see in the case of physicians, the patient is able to carry on complicated trains of thought. Even in these, temporary lack of attention by the nurse may result in overexertion, serious accident, or even death.

DIET.

Proper feeding is important for the same reasons that indicate rest, and as a full meal or an indigestion may cause serious inconvenience to the heart or lungs, the food must be nutritious, easily digestible and given at short intervals. Water is useful, not only on account of the high temperature, but also to assist in washing out the poisons formed in the disease, and in keeping up the volume of the blood. Like the food, it must be given with regard to time and amount, and it may be medicated or flavored, or carbonated, provided the latter does not cause distension of the stomach. Both for comfort and to lessen the danger of infection of self and others, scrupulous care of the mouth is necessary.

MEDICINAL AND OTHER TREATMENT.

In pneumonia, as in most other acute diseases, a cathartic in the beginning often conduces to comfort and saves trouble in the later stage. Calomel is a convenient remedy, but castor oil or other preparations may be used if preferred.

In some cases of pneumonia nothing more is needed than the treatment mentioned, except a faithful and cool-headed nurse and a physician to examine the patient and chart at intervals, noting at each visit the general condition, state of pulse, color, breathing, cough, expectoration, lungs, heart and pleura, stools and urine, mouth and abdomen, and frequently the ears. The examination of the blood for the number of leucocytes is often interesting, but not essential during treatment. The diagnostic value of blood examinations in pneumonia needs no argument, and the cultivations of the bacteria in the blood is of great value in explaining many irregularities and complications.

Often there are symptoms that need attention.

Pain is often severe, either in the chest or abdomen, and suggests the use of morphin. In most cases I find the ice bag will relieve pain just as well, and its use avoids the untoward effects of morphin on the stomach and mental condition. I admit that it requires some courage, and often involves much difficulty to change from the use of the hypodermic needle or Dover's powder to the ice bag, but those who have used the latter will agree with me when I say that one can often see patients crying with pain in spite of liberal doses of morphin, who quickly become calm with the ice bag.

Heat sometimes seems to relieve pain as well as cold, but the latter has other advantages. Among these is the relief of the cough, and the improvement of the breathing.

It is necessary to speak of expectorants, because there are many who believe these are necessary for the removal of the exudate, notwithstanding positive knowledge to the contrary. In some cases there is a complicating bronchitis that can be treated with advantage by expectorants, but in many cases the expectoration and cough are kept up by unnecessary drugs.

Fever rarely requires active treatment in pneumonia. Coal tar antipyretics are with reason reprobated in print, but still used too much in practice. If the nervous or cardiac symptoms are severe, not from the fever, generally, but from intoxication, ice bags or cold coils to the head and heart region, or bathing, are useful. If the symptoms are only moderately severe local ice bags, or coils, with tepid sponging of the body will suffice. If toxic symptoms are marked the full bath, as in the Brand treatment, either beginning at 65 F. or reducing,

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

from 85 F.-90 F., according to the case, with friction, often gives striking relief to all the symptoms. In some cases insomnia more than delirium requires treatment. Here morphin is useful, a single dose often being sufficient, though a full dose of bromid is sometimes successful.

Tympanites usually yields to simple enemas if treated early as it should be. It may require calomel, turpentine enemata or the rectal tube. An ice bag to the abdomen often does good.

Other internal medication is not a regular part of this treatment. Alcohol can be left out without loss. Strychnia is sometimes given, never necessary as a routine remedy, never indicated at a particular day, in all cases, and I can not yet admit its uselessness in circulatory weakness. I consider the heart and vascular conditions as the most important single ones in pneumonia. So-called cardiac stimulants, however, are not always needed, and when they are, the ice bag externally, hot milk, beef tea or coffee internally, come into use before medicines. Hypodermoclysis, often used for circulatory weakness, I shall also not consider, though I recognize the value of the method in introducing water into the body.

As regards external applications, the only routine ones I use are the ice bag and coil. In some cases, old people or babies especially, cotton jackets are used instead, but even in young children a light ice bag, not kept on all the time in all cases, or a cold coil, often seems better than any other treatment I have seen.

The cold bath is invaluable in some cases, but not necessary in all. Blisters are still recommended by some. I used them very thoroughly under one of the most accomplished masters of that heroic school, putting on fly plasters from 9x15 to 12x18 inches, sometimes on both sides, and drawing literally quarts of serum. I have put them on soon after the initial chill. I have never been able to see any shortening of the course or lessening of the symptoms, and pleurisy and pericarditis were as frequent as under other methods. I have occasionally seen less radical counter-irritation, but with the same negative results.

Two or three years ago it would have been unnecessary to speak of poultices in the treatment of pneumonia. They often relieve symptoms, but can usually be substituted without loss by the cotton jacket. Within a short time the poultice has been revived in a new form under the stimulating influence of printer's ink and an amount of physiologic and therapeutic misinformation that would make Rabelais laugh, but must make all judicious therapeutists grieve.

Oxygen is one of the most important needs for the pneumonia patient, but the compressed variety could often be replaced with advantage by fresh air. Nothing can be more paradoxical than the practice of putting oxygen tanks in the sick room, and turning on a few gallons every half hour or so, while all the windows are closed, often battened down with cotton, sometimes an oil lamp burning in the room and not rarely as many people as can find place in it. Open windows, avoiding actual draughts, give much more distinct relief to dyspnea and cyanosis, are indicated on obvious grounds, and should be used. If it seems desirable, the atmospheric kind can be reinforced by pure oxygen, given in an efficient manner, but it is well to ascertain whether the cyanosis, the usual indication for oxygen, can not be relieved by treating a tympanitic abdomen or a dilated heart.

THE PREVENTION AND TREATMENT OF HEART FAILURE IN PNEUMONIA.*

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"The time to treat heart failure is before it happens." These words, used by Abraham Jacobi in a discussion on the treatment of diphtheria nearly twenty years ago, impressed me forcibly. The maxim applies equally to pneumonia.

From what sources does the danger of heart failure in pneumonia threaten? Its causes are many and their interaction may be complex. There are three principal causes and many secondary ones. The principal causes are, first, the toxemia; second, the mechanical obstruction to the circulation in the lung, causing overburdening and dilatation, especially of the right heart; third, the alteration in the physical and chemical constitution of the blood which, apart from the toxic effect on nervous and muscular action, central and cardiac, predisposes to the formation of antemortem clot. Among the most important of rare causes are hyperpyrexia and a sudden paralysis of inexplicable origin.

THE TOXEMIA.

The old name "lung fever" is, perhaps, better than the modern one of croupous pneumonia, inasmuch as it emphasizes the fact that we are dealing with a general infection of which the local lesion is merely one expression; while the modern term, concentrating attention unduly on the morbid anatomy of the disease, has certainly misled an earlier generation, if not our own, into neglect of the toxic condition which is the source of greatest danger to the patient. The pneumotoxin unquestionably disturbs cardiac and respiratory action much more than does the interference with pulmonary and cardiac function caused by the local morbid process. No further proof of this is wanting to him who, having observed the respiratory distress and the laboring pulse just before crisis, has seen the return within a few hours to tranquil breathing and quiet cardiac action, while the physical signs over the consolidated lung remain practically unchanged. Whether the toxin acts centrally or peripherally, or both, is a question unsettled and of minor importance at present, but that it acts is evident; and from clinical observation I am inclined to believe that its action on nervous tissues, both central and peripheral, is supplemented by a directly depressant effect on the cardiac muscle itself. Thus we have to guard against failure of the central organ of circulation, as well as against widespread vasomotor paresis.

Against the toxin and its action in bringing about cardiovascular failure, effort must be directed from the moment we are summoned to the case. Our chief means of combating it at present is elimination. Hence the value of early blood letting, followed or accompanied by subcutaneous or venous infusion of saline solution, in cases in which this measure can on other grounds be considered justifiable, and of free sweating if a case is seen sufficiently early. Hence also the importance of maintaining free diuresis and excretion generally. Chemical neutralization of the toxin by antitoxin is a measure strongly indicated theoretically, and we may

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some day be supplied with an efficient preparation for this purpose. The antipneumococcic and antipneumotoxic serums thus far introduced do not seem to meet the requirements.

Other chemical antagonists—natural drugs, synthetics, serums or animal extracts—may be found that, if, unable to neutralize the toxin completely, may yet in some measure interfere with its reception by the cells, or its destructive action on them, and it is possible that this will be found to be the explanation of the good effects attributed from time to time to a number of drugs, some of which are still used and some of which have fallen into disuse. We must, however, wait further development of the studies now being made on the action of the specific toxins and the actions and reactions of the animal tissues and juices, before opinions or therapeutic experiments of this kind can be more than vague guesses. A few recent experiences with veratrum viride, so highly lauded on empiric grounds by many experienced practitioners, but whose usefulness, if real, most surely does not depend on its supposed substitution for the lancet, have led me to inquire whether there might not be some principle in veratrum that in part or in whole antagonizes the pneumotoxin or prevents its action on cells, or stimulates the formation of an immunizing body or complement. For whatever reason, veratrum given early and freely and stopped soon, is of proved usefulness. Concerning quinin, from time to time advocated as a jugulant of the disease, the same queries may be raised.[1] These questions, however, I can not answer, nor am I prepared to advocate the routine use of veratrum or of quinin as a means of bringing about an early crisis on the strength of three surprising observations in the course of twenty-one years of practice; more especially as the apparent abortion of the disease in these instances precludes diagnostic certainty. I am, however, willing to mention these observations and to state that I consider them seriously. I am both willing and prepared to advocate strongly the use of a hot bath or any other means available for inducing copious diaphoresis, in any case of either croupous or catarrhal pneumonia, and especially of influenza pneumonia, when seen at a comparatively early stage.

In the late stages, in the dangerous period of the disease, that is to say, about the height of the stage of consolidation, and later toward crisis and after crisis, while the toxic action and its results are still to be feared, forced elimination no longer offers the same prospect of success either as a measure of prevention or as a means of treatment. In the absence of a known chemical antidote we are compelled to depend empirically on drugs that meet the symptomatic indications. To these I shall refer later. At this point, however, mention may be made of a combination of sodium salicylate (10 grains) and sodium benzoate (20 grains) which, given in a pepsinated vehicle every hour or two until the full physiologic effect of the salicylate is manifest, as by *tinnitus aurium*, seems to supplement admirably the effect of the sweat-bath.

THE MECHANICAL OBSTRUCTION TO CIRCULATION IN THE LUNG.

In the early stage, interference with the pulmonary circulation has but slight influence on the heart, but, as the lesions progress, and especially if large areas be involved, blood begins to accumulate in the right heart, which is not only weakened by the effect of the toxin, but also over-distended by an accumulation with which it can not deal. The left heart weakened by the toxin, attempts to carry on the circulation against this double obstacle, but labors, and frequently fails. Vasomotor tone being diminished generally, the weakness of peripheral circulation embarrasses the cardiovascular system still further. Here the indication is direct to relieve the circulatory channels of the volume of liquid with which they are unable to deal; and venesection is strongly indicated or, perhaps, even an emergency puncture of the right heart might be justified. It is possible, however, in some degree to prevent this excessive accumulation of blood on the venous side of the body by measures which delay the general circulation and which increase the capacity and regulate the tone of the peripheral arteries, arterioles, capillaries and veins—as counter-irritation, vigorous friction with or without cold water, the use of a precordial ice coil, the use of digitalis, perhaps the use of veratrum, and certainly the use of nitroglycerin and amyl nitrite when vascular dilatation seems most desirable, or of barium chlorid, strychnin, adrenal preparations, atropin, digitalin, perhaps ergot, when it seems most necessary to heighten vascular tone.

THE EXCESSIVE TENDENCY TO COAGULATION OF THE BLOOD.

That the pneumotoxin so alters the chemical relations of the blood as to favor coagulative processes needs no demonstration at this time. I am aware that modern pathologists discard the old theories of death from antemortem clot, but admitting the alteration in the constitution of the blood and realizing the fact that the circulation in the pulmonary artery and its tributaries is obstructed, delayed, and in some places brought to a standstill, the mechano-biologic conditions are present for the formation of thrombi and the suddenness with which death sometimes occurs in patients whose other symptoms have given no intimation of the imminence of cardiac, vascular or respiratory failure, or of general exhaustion, seems to point to the actuality of such occurrences.

In rare cases, pulmonary thrombus, as verified by postmortem examination, has even occurred during apparent convalescence. Measures to maintain the fluidity of the blood are therefore wise. The disturbance in chlorid excretion seems to point to the wisdom of increasing the sodium chlorid content of the blood. Ammonium, too, is known to oppose the deposit of fibrin. In the absence of an efficient antitoxin the old empiric use of ammonium chlorid and ammonium carbonate and the modern use of saline infusion after the method of F. P. Henry, of Philadelphia, to whom credit for its introduction should always be given, seem to have their philosophic justification. Of their practical advantage I shall speak later.

SECONDARY CAUSES OF CARDIAC FAILURE.

The secondary causes of cardiac failure are so numerous that an attempt at systematic study of them and of their indications would be both prolonged and incomplete. It will suffice therefore to indicate briefly a few of the more prominent. When febrile heat rises to an excessive degree (106 F. or more) undoubtedly it aids in depressing the heart. Antipyretic measures, chiefly the application of external cold, are then indicated. I have already referred to the value of cold friction rubs

1. Since this paper was read I have seen a similar suggestion concerning digitalis, whose antipneumotoxic power is said to have been verified by test-tube experiments. The field is a promising one for investigation.

in stimulating peripheral circulation, but this use of cold water is independent of temperature. When the temperature is persistently low, on the other hand, it usually evidences deficient reactive power on the part of the individual, or what amounts to the same thing, from the other side of the shield, a profound and overwhelming toxemia. Eliminative and supporting measures are thus indicated, and among these may even be the external application of heat.

The effect of heat in relaxing the external circulation, and reflexly the pulmonary circulation, may even assist to diminish the effect of mechanical obstruction.

Distention of the abdomen, pressing on the diaphragm, often adds a straw, perhaps a determining one, to the load the heart has to carry. Loss of appetite, deficient digestion, absorption and assimilation—in other words, general want of nourishment—deprives the heart of potential energy. Deficient oxygenation of the blood acts in a similar manner and also perhaps impedes the destruction and elimination of toxins.

Such contributing causes are best met either by general measures or by symptomatic means directed to the removal of the special symptom or condition. Thus turpentine internally, in relieving tympanites, helps the heart. Inhalation of oxygen in maintaining the store of oxyhemoglobin and in relieving respiratory distress and in diminishing the toxemia, helps the heart. Strychnin, in calling forth a greater liberation of the stored energy of the system, compensates temporarily for the deprivation of the potential energy of food. Alcohol, readily oxidizable, may be an efficient substitute for food and thus help the heart, apart altogether from its disputed stimulant and antitoxic effects.

MEDICINAL TREATMENT.

Drugs may be employed with care and discretion to antagonize the results of the toxemia on the cardiovascular apparatus. We recognize two classes of remedies—those used to support the heart and vessels during the progress of the case, and those used in emergencies. Of the former, I have already mentioned digitalis, barium chlorid, strychnin and atropin. Digitalis, of which an efficient preparation must be obtained, may be given as soon as there are signs of hepatization; before this, it is counterindicated, as aconite or veratrum should be used. The dose, the frequency and the persistence of its use, will depend on the conditions present in the individual case. It has the advantage of raising peripheral vascular tone as well as of increasing the force and diminishing the rate of the heart. Often very large doses have to be given to obtain physiologic effect, a circumstance for which a chemical explanation may some time be forthcoming. The infusion, if it can be tolerated by the stomach, is usually the best form, for the sake of the diuretic effect. It can be strengthened by adding the tincture, if necesary. Four-hour intervals are usually appropriate. Barium chlorid (in doses of about 1/8 grain every 4 or 6 hours) and atropin (1/200 grain every 2, 4 or 6 hours) are useful, more especially for effect on peripheral vessels. In the bronchopneumonia of children, the alternate use of atropin and digitalin hypodermically is often of signal service. Sometimes a combination of atropin and camphor in very small doses—1/2,000 grain of atropin and 1/8 grain camphor—may be given at short intervals (every half hour) with better effect than larger doses further apart. Strychnin is an extremely useful drug to maintain general neurocardiovascular strength, but is also extremely apt to be abused. It should be given alone when there is no special indication for any of the cardiant and vascular tonics mentioned, and usually should be continued in conjunction when the other drugs are indicated. Small, comparatively frequent doses are needed, the exact intervals depending on special conditions. For this reason the drug should never be put into a mixture, but is to be kept separate, and best in the form of tablet triturates or minute pellets. Sugar-coated and gelatin-coated stock-pills are to be avoided; their solution is too uncertain. The usual dose of strychnin arseniate is ½ milligram (1/128 grain) every hour for ten hours daily. This produces a mild and continuous discharge of nervous energy and avoids violent and exhaustive discharges. For prompt emergency effect, hypodermatic injection is needed, and the dose may be from 1/40 to 1/10 grain (1.5 to 6 milligrams).

Usually, however, strychnin is not the best drug for use in an urgent case of collapse. When we desire to cause, as it were, a prompt artificial contraction in a heart no longer sustained by its natural functional stimulants, there are at our service three more potent agents—suprarenalin, camphor and musk.

Suprarenalin may be given on the tongue or injected in any convenient solution under the skin. Its effect is quick and transient. I have had made by my druggist suprarenalin triturates containing 1/20 grain active principle in a very small quantity of sugar of milk. These are preferable to solution for lingual administration. They dissolve quickly and do not fill the mouth with liquid. Such a tablet may be given every ten minutes, if needed; as a rule, one every one-half hour to two hours suffices. The drug likewise raises vascular tone—a great advantage. Camphor may be injected hypodermatically in a 10 per cent. solution in sterilized olive oil or in 10 per cent. solution in ether. Exact dosage is unnecessary, about a syringeful, say from 20 to 30 minims, can be used. The effect is prompt and usually lasts for some hours. The injection is to be repeated as needed.

Five or ten drops of tincture of musk given hypodermatically exert a powerful influence in overcoming the tendency to cardiac collapse, and the action of musk is even more sustained than that of camphor. Unfortunately much of what is sold in the shops for musk consists of the outer covering of the musk mixed with a great deal of dirt and is therapeutically inert. Real musk is expensive, but is therapeutically potent. One must see that his druggist has the real musk in stock and is prepared to dispense it on prescription, and one must provide himself with a small quantity of the tincture to be prepared for emergencies when the druggist cannot be reached.

In cases in which a cardiac collapse is suspected to be impending it is useful to administer five or ten drops of musk by the mouth two or three times a day in anticipation, and often in successful prevention of such an accident.

The camphor solution and the adrenalin should be at hand for use hypodermatically in any sudden emergency. Compound spirit of ether, in doses of 10 drops every ten minutes, and aromatic spirit of ammonia, in similar dosage, may be used, if at hand, in the absence of the more active agents previously mentioned. Ammonium carbonate is of little use in an emergency, but given with alcohol and liquor ammonii acetatis, after the emergency has passed, may help to avert its recurrence.

Such drugs should be used promptly. An intelligent

nurse being provided, she should be given liberty to employ them at once without waiting to call the physician and without delaying for his arrival. I sometimes think that perhaps cases of pneumonia have been saved by the fact that a resident physician in the hospital or an attending physician in a private house has inspected the patient frequently during the night and has been at call within a few yards of the bedside. The timely use of strychnin, atropin, camphor, amyl nitrite, suprarenalin, or musk, whichever may have been indicated by the conditions present, has enabled the machinery of the patient to continue working under artificial stimulation long enough for crisis to occur and to pass safely.

PRECORDIAL ICE COIL.

The precordial ice water coil is one of the most efficient agents that we have for direct and continued invigoration of the heart in all infectious fevers, and especially in pneumonia. Its efficiency, however, depends very much on the manner in which it is applied. In the first place, the application of a cold coil should always be preceded by a brief application of heat to the precordium. This may be done by applying a hot compress over the precordium and running a current of hot water through the overlying coil for two minutes, after which a cold compress is to be substituted and cold water run through the coil. The cold application is to be continued for from ten minutes to half an hour, according to the effect on the heart as shown by the pulse.

The action, as Winternitz observes, is practically that of digitalis without any of the unpleasant effects of the drug. I am not in the habit of applying cold to the chest as a routine measure in pneumonia, preferring, as already stated, the relaxing and pain-relieving effects of heat, but the application of the precordial ice coil twice daily for from 20 minutes to 30 minutes, does seem to have a steadying and strengthening influence on the heart that is well worth the trouble it causes.

When the precordial coil is not available, hot-water and ice-water compresses or hot-water and ice bags may be used instead.

I have frequently seen the pulse rate reduced by ten beats and strengthened proportionately from twenty minutes' application of cold to the precordium in this manner. The advantage of the coil over the ice bag is that it is less weighty and that it maintains a constant temperature.

Prolonged cold applications should not be used, however, in the late stages when the right heart begins to be overdistended. In such cases brief applications of heat followed by very brief applications of cold, say a hot compress for two minutes, followed by a cold compress for two minutes, are more useful.

Whenever and however used, the temperature and time of the cold application must be carefully regulated and changed according to necessity. No fixed temperature and no fixed time can be laid down. One accustomed to hydriatric applications can judge from the general condition of the patient about what prescription to give on these matters. But even he must work tentatively and observe carefully. More necessary is it for one who is beginning to make his experience to go cautiously. A tentative prescription may be somewhat as follows: Compress at 108 F., coil at 104 F. for two minutes; then, compress wrung out of ice water (32 F. to 40 F.) and coil of 60 F. for five minutes. If this is well borne, the temperature of the water running through the coil may then be reduced to 50 F. for five minutes more, and if the effect as observed by the pulse is still good, the application may be continued for ten minutes longer. The second application may be made some six hours later and if the preceding application has had a good effect the temperature of this one may be 50 F. to begin with, or may be higher or lower according to what seem to be the necessities of the case. As a rule it is not wise to make a very cold application, that is to say 40 F. or less, for longer than fifteen minutes. An application of 50 F. may be continued for half an hour, or even for an hour in exceptional cases.

NITROGLYCERIN AND AMYL NITRITE.

These are drugs of the first importance in the prevention of heart failure in pneumonia. It is true that unless they are given in very large doses these drugs do not have any relaxing influence on the pulmonary circulation, but their influence on the peripheral circulation does unquestionably diminish the load on the heart, improve the contraction of the ventricle and lessen the tendency to pulmonary congestion. They raise pulmonary blood pressure favorably, therefore assisting both pulmonary and systemic circulation. Especially is their combination with digitalis of use. The attempt should be made to reduce radial tension as appreciated by the finger a little below normal, while at the same time bringing the rate of the pulse distinctly under the influence of the digitalis. In this way the best effect of each drug can be obtained, the work of the heart being lightened and the organ helped. An additional guide to the use of these agents is the effect on respiration and on the circulation in the skin. Reduction in the rate, increase in the ease of breathing and the change from cyanosis toward a normal color of the lips and cheeks are indications of the good effects of the remedies. It is, however, quite possible to abuse these drugs, first, by using them when there is no necessity for their use; second, by giving them in insufficient doses; third, by giving them in too great doses; fourth, by continuing their use beyond the point at which they are helpful. No exact rule can be laid down for this use and abuse. It is a matter of careful observation in the individual case; a question of art, not of science. When the pulse tension is already too low the nitrites are contraindicated. When the pulse tension remains too high, notwithstanding the free use of the nitrites, digitalis is contraindicated. So, too, dependence on digitalis or on the nitrites early or late when venesection is called for, is unwise and prejudicial to the patient. The effect therefore in the individual case and the changing circumstances of the case are to be our guides in administering, withholding or intermitting the use of these agents rather than maxims or theoretic considerations.

HEAT.

The external application of heat is a matter concerning which there has been considerable diversity of opinion. The vogue of the old-fashioned flaxseed poultice and its present desuetude are well known and I shall not discuss the subject in full. From the standpoint of the prevention of cardiac failure, however, I wish to urge strongly the use from the beginning of the case of the external application of heat, and I find a well-made poultice the best means of applying heat evenly and comfortably in such a manner that the application can be kept up with a minimum of disturbance to the patient.

If a cuirass of rubber tubing could be made which would fit snugly to the chest, which would not be heavy

or uncomfortable, and which could be fed with hot water at a definite temperature in such a manner as not to be disturbed by the movements of the patient, it would be preferable to the poultice. But the mechanical difficulties in the way of this measure are quite great. A well made and properly applied poultice will retain its heat for at least four hours and should not be uncleanly. My practice is to apply poultices during the day and to wrap the patient up in a lamb's wool jacket at night so that his sleep need not be broken by the expiration of the fourth hour period nor, on the other hand, a poultice that has lost its heat be suffered to remain in place.

When possible, hot-water bags are placed outside of the lamb's wool jacket in such a way as not to incommode the patient. I believe that the use of heat in this way tends to equalize the circulation within the bony thorax as well as to relax the external vessels. Also there can be little question that pleuritic pain is relieved by heat more quickly and more certainly than by any other means.

IMPORTANCE OF REST.

In the effort to combat toxemia by elimination or by neutralization or to give relief to pulmonary circulation by any of the methods mentioned, we must not lose sight of the fact that rest is imperatively demanded and that unwise interference by the physician and unnecessary disturbance of the patient by the nurse will do harm by depriving the heart, and the organism in general, of the rest needed. In certain instances, indeed, the necessity will be presented to make choice between undisturbed rest and the problematic good that some measure of treatment may seem to offer. Unless there is a clear indication for the treatment, unless its effect is reasonably certain or unless the patient is in such danger that it is worth while to risk a clearly indicated, but uncertain measure, rather than to let certain death come unopposed, it is wise in all such instances to refrain from interference. One reason why the old-fashioned poultice fell into undeserved disrepute was the fact that poorly made poultices necessitated such frequent change that the evil wrought by the disturbance outweighed the good done by the poultice. Well-made poultices, retaining their heat from four to six hours, however, give so much relief from pain—thus acting as sedatives to the nervous system—that they may be classed among agents promoting rest. Sleep is necessary, and there is a tendency among some practitioners to give opium to relieve pain and to promote sleep. Opium, however, has always seemed to me a dangerous drug in pneumonia, being depressant to the respiratory centers and the heart and possessed of a deleterious influence on excretion, especially through the kidneys. Hence other means of inducing sleep must be sought. Among these the external application of heat by poultice or otherwise is again to be mentioned.

DANGERS OF ANTIPYRETIC AND HYPNOTIC DRUGS.

Ice caps to the head, ice to the nape of the neck, hot applications to the feet, cool and cold sponges, even cold sprinkling and tubbing; in extreme cases, nitrous oxid and oxygen by inhalation; in other words, agents that tend to relieve pain, equalize circulation, soothe the higher nervous centers, ease respiration and diminish toxemia, tend to promote sleep. In the presence of a sufficiently urgent indication, however, when all of these measures have failed and the loss of sleep is among the depressing and irritating influences that tend to exhaust the strength of the patient and consequently to make heart failure more probable, full doses of bromids, preferably strontium bromid, may be given.

DANGERS OF ANTIPYRETIC AND HYPNOTIC DRUGS.

Such drugs as chloral, chloralamid, trional, sulphonal and *a fortiori* acetanilid, antipyrin and the proprietary abominations such as thermol, antikamnia and the like, are too depressing to the heart to be considered for a moment. Thermol is among the worst of these preparations, and in several cases which I have seen in consultation, and in which this poisonous agent had been used prior to consultation, I have observed a degree of cardiac irregularity and weakness which could not be attributed to the advanced stage of the disease and the profundity of the toxemia or to the mechanical interference with circulation. In some of these cases recovery has ensued on cessation of the thermol, others have died. Death is not unknown in cases of pneumonia in which thermol has not been given, and consequently I cannot say positively that in these instances it was caused by that compound, but I have every reason to believe that the patient's chances for recovery were greatly diminished by its use, and on account of the unwarrantable claims made for this proprietary agent and its rather extensive use in cases of pneumonia (in the neighborhood of Philadelphia at least), I have been impelled to utter this special warning against it. It certainly does no good, and as certainly does much harm—to the heart especially. I have little doubt that in a case wavering between life and death the use of some depressing coal tar product, needless as an analgesic or as an antipyretic, may directly determine the fatal issue. It is also to be remarked that in many cases of pneumonia in which the heart is found to give trouble from the outset, or in which irregularity and feebleness of its action supervene unexpectedly without apparently sufficient cause, inquiry will elicit the fact that the patient has been in the habit of taking trional, sulphonal, acetanilid and other hypnotic and analgesic synthetics for the production of sleep or for the relief of headache. I have little doubt that many of the cases of death from heart failure in pneumonia within recent years, and thus a large part of the increased mortality of this disease, are to be attributed to the self-drugging habit, or, in other words, to the abuse of hypnotics and headache powders.

I wish I could feel sure that the skirts of physicians are entirely clear of blame in this matter. I have frequently had occasion to warn patients who have acquired this habit before coming under my care of the danger involved, and in some instances I have found that patients had begun taking these sleeping and pain-relieving powders either through the original recommendation of a physician or by the advice of a friend or of a friend's friend for whom they had been prescribed. We cannot, of course, be held responsible directly for this indiscriminate prescribing, but we certainly should warn all persons for whom we have occasion to order such drugs that they are dangerous agents, to be used only under medical advice. It is necessary on our own part to be careful not to prescribe them needlessly and not to permit them to be continued for any length of time.

DANGERS OF CHANGE OF POSTURE.

Rest is necessary not only during the period of active disease, but also, and especially, during the earlier period of convalescence. It not infrequently happens that the patient who has safely passed the crisis of pneumonia

and seems on the way toward full recovery, has suddenly collapsed, dying immediately or after some hours of struggle as the apparent result of the mere effort of sitting up in bed. Patients should not be allowed to lift or turn themselves for examination, feeding, evacuations, sponging or any purpose whatsoever. They should be told and trained to remain passive while all necessary changes of posture are gently made by the attendants; even then there should be no unnecessary changes nor any lifting out of the horizontal for any purpose at any time until recovery is thoroughly established. In very many cases this extreme degree of caution is unnecessary. In a few cases it may be the means of saving life. As we have no means of discriminating between the cases in which it is unnecessary and the cases in which it is imperative, until the accident occurs, it would seem the wiser plan to avoid such accidents by considering the caution absolutely necessary in every case.

NURSING SCHEDULE.

In order to prevent even the best of nurses from disturbing the patient too frequently for food, medicine, external application or other purpose, it is often necessary for the physician to write out a detailed schedule with explicit directions as to the time of giving water, medicine, food and oxygen, and of performing the other nursing duties. The more complicated the treatment the more difficult will it be to arrange such a schedule and still give the patient sufficient time for rest. The wisdom, therefore, of simple treatment is evident from this standpoint at least. On the other hand, there should be no hesitation in doing whatever is necessary at any time, the important point being to be sure that the thing done is necessary and then to be prompt with it. This applies especially to the inhalation of oxygen and the use of saline infusion and to the administration of the emergency cardiants. Concerning these, it is to be said that "the readiness is all." They may never be needed in the course of the case, but they should always be at hand to avoid the least delay in their administration when necessary.

FOOD.

The diet is an important element in maintaining the nutrition and in keeping up the strength of the heart. In this paper it is not necessary to go into that subject in detail; it is sufficient to say that the food should be such as may be absorbed readily with the least possible demand on the energy of the system for digestion, while producing the least possible amount of toxin necessary to be guarded against by the liver. It should be given in small amounts, at not too frequent intervals. As the patient's sleep should never be disturbed for medicine so it should never be disturbed for food.

Milk, pancreatized, and given to the adult in intervals of about four ounces every three hours while awake, is all-sufficient when the patient can be induced to take it in that way. Alcohol may be added to it in the beginning of the disease and should be added about the fourth day if it has not been used earlier. Koumyss, (kefir), junket, buttermilk and other milk preparations, when more agreeable or better borne than pancreatized milk, may be substituted for it. If the patient can be induced to take the milk hot it may suffice to mix equal parts of milk and hot water with or without the addition of lime water. Sometimes a little essence of pepsin given after the milk has been swallowed is useful. But it is unnecessary to elaborate the subject further. The diet, while sufficient, must not be burdensome.

GENERAL OBSERVATIONS.

The evacuations must be carefully watched and maintained at a little beyond the normal rate. To avoid straining at stool as well as to avoid all danger of constipation, with attendant intoxication or liberation of putrefactive gases and intestinal distention, it is well to begin the treatment of every case with the administration of calomel and to wash out the bowel daily with hot saline solution when this can be done without disturbing the patient, as is usually the case when the nurse is skillful. Sometimes the administration of calomel or a mild saline laxative, or of some vegetable laxative, such as cascara, throughout the case or on occasion, is useful. When tympanites occurs notwithstanding due care of the intestinal evacuations, consequent pressure on the diaphragm increases the load thrown on the heart and thus adds to the factors which are tending toward heart failure. In such circumstances the administration of intestinal disinfectants such as guaiacol, spirit of chloroform, ichthoform, ammonium formaldehyd, acetozone, etc., may be useful. I have seen the greatest benefit, however, from the use of turpentine, or when turpentine fails, the injection into the rectum of milk of asafetida. Hot compresses or a hot coil over the abdomen, or turpentine stupes over the abdomen are sometimes useful.

Elimination of urine must be promoted by the administration of a sufficient quantity of water, given at such periods and in such quantities as will not unduly disturb the patient. Saline injection into the colon may be used when from any reason it is impossible to administer a sufficient quantity of water by the mouth, and it is not considered wise to resort to hypodermoclysis. Indeed I have often thought that it might be wise to do this as a routine measure, watching the effect on the elimination of chlorids by the urine and endeavoring to restore the normal quantity. The effect of calcium chlorid in stimulating the cardiac muscle suggests the employment of this drug, but, on the other hand, its tendency to increase fibrinogenesis is a contraindication, and for that reason there at least can be no objection to its omission from saline mixtures given under the skin or in the colon.

I have not made a sufficient study of the chlorid elimination and of the attendant toxicity of the urine to dogmatize on this point, but it seems to me deserving of serious study both pathologically and therapeutically. In this connection it may be well to recur once more to the great value of cutaneous stimulation by systematic friction, which may be pleasantly done with alcohol and cold water. This measure has been urged, not as a means of antipyresis, although it does tend to prevent dangerous hyperpyrexia, but as a means of equalizing circulation. A further usefulness remains to be pointed out—nerve stimulation and increase of elimination of toxins both by the skin and by the kidneys. It, therefore, has a deservedly high place among the means of prevention and treatment of heart failure.

The Physician's Greatest Problem.—Patients will take medicine when they will not take advice, and too often it is advice they need and not medicine. The physician whose force and character make his advice sought after and followed is the one who accomplishes the most. He can not ignore drugs, but his success depends on the extent to which he can dominate his patients and correct the omissions, errors and excesses of their lives.—*Vermont Medical Monthly.*

SERUM TREATMENT OF PNEUMONIA.*

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PHILADELPHIA.

The most rational treatment of pneumonia is that which aims to neutralize the pneumotoxins in the circulation. By the side of this object of treatment, efforts to influence the local inflammatory process are subordinate in point of practical importance. It is now universally recognized that the continuous high death rate in this disease is dependent on the toxemia, and that the cardiac exhaustion is to a greater extent due to the same cause than mechanical embarrassment. Recognizing the fact that the principal danger arises from the general pneumococcic infection, the great desirability of finding successful means of combating this source of danger must be obvious.

The effect of antipneumococcal sera, according to the reports of those who have had experience of their use, seems to manifest considerable variety both as to character and extent. A somewhat extended series of observations by a large number of careful clinical observers are now on record, as may be seen by an analysis of the subjoined table.

One point is clear at the outset, namely, that the serum treatment has not, as a rule, been employed alone, but in conjunction with other expectant and symptomatic treatment and the usual supportive measures. Indeed, some observers have used the serum in cases of pneumonia without the slightest success, while others have obtained encouraging results. Unfortunately, too much stress has been laid on individual instances in which the serum treatment appeared to be influential in bringing about recovery. It is reasonably certain that we have no conclusive evidence to the effect that the serum exercises a specific influence in this disease, as will be shown hereafter.

METHOD OF PREPARATION AND STANDARDIZATION.

We are sadly in need of further laboratory experiments with a view to furnishing a more effective product than has been available until the present. The accurate standardization of the anti-pneumococcic serum is a question that awaits final solution. The method of preparing the serum is of great practical importance in order to obtain its best action in this disease. Both Washburn[1] and McFarland[1] state that practically the same process applies to the manufacture of the antipneumococcic serum as that of diphtheria antitoxin, although, according to the last-named author, it is necessary to cultivate the pneumococcus by a special method.

All investigators have thus far failed to produce a serum that produces antitoxic properties, although it is claimed by some (Lambert, Washburn, Pane et al) that antipneumococcus sera have anti-infectious qualities and may prevent death from pneumococcus septicemia. Thus Lambert's serum (prepared from horses) would invariably protect any rabbit when 1 c.c. was mixed with .001 c.c. of culture and injected subcutaneously. "But, if the pneumococci were already in the blood in sufficiently large numbers to be proven by cultures, even large doses of the serum given for several consecutive days would not save the animal. It would prolong life, but not save it."[2] W. H. Welch[3] affirms that the present stage of progress does not hold out any hope of a protective antitoxin owing to the low vitality of the pneumococcus in artificial inoculation, and, further, that there is absolutely nothing that can be termed specific in the disease. Tyler[4] has given a detailed statement respecting the leading methods of preparation, to which the reader may be referred for further information.

CONTRADICTORY RESULTS OF THE SERUM TREATMENT AND THEIR CAUSES.

Croupous pneumonia is not an uncomplicated affection, in many instances at least. The disease is often to be classed as a mixed infection with the streptococcus. Obviously, in cases of mixed infection with the streptococcus or other micro-organisms, less favorable results are obtained than in simple pneumococcus infection. McFarland and Lincoln[5] state that in about 15 per cent. of cases of pneumonia the pneumococcus is present in combination with the influenza bacillus, streptococcus, staphylococcus, colon bacillus, etc., and in an additional 10 per cent. of the cases various bacteria other than the pneumococcus. Moreover, still other specific organisms than the pneumococcus may give rise to clinical lobar pneumonia, hence it is necessary to prove the specificity of any given case by bacteriologic studies before accurate results from any form of serum treatment can be obtained.

As a prime preliminary requisite, then, a rigid bacteriologic classification and differentiation of the cases it is proposed to treat, must be attempted, so that the clinicians may eliminate from consideration cases that are clinically identical with the disease, but show some infecting microbe other than the pneumococcus, and this diagnostic precaution would also render the reports on the antipneumococcus serum treatment more trustworthy. One thing is certain, it would be found that the serum is not indicated in all cases in which a clinical diagnosis of pneumonia is possible.

EFFECTS OF THE SERUM ON THE SYMPTOMS AND COURSE OF PNEUMONIA.

An analysis of the effects of the antipneumococcus serum on the symptoms and course of the disease brings to light certain contrasting results and points worthy of record. Most authors who have reported personal experience of the use of serum in the treatment of this disease, invite attention to a slight fall of temperature following the administration as the most constant, although ofttimes slight, effect. In the minority of instances a slight rise of temperature occurred. Individual observers, however, report variable, and even diametrically opposed results. Thus Cooke,[6] who treated two cases of acute lobar pneumonia with antipneumococcic serum, states that the serum injections were generally followed by some degree of subjective improvement, though no marked effect, either on the temperature or physical condition of the lung, was observed.

Park,[7] speaking from personal observations, together with a review of the literature, remarks that, as a rule, the cases did better than was expected, "but certainly no striking curative effects were apparent. The cases did

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee: Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

1. Cited by Tyler, THE JOURNAL A. M. A., June 1, 1901, p. 1541.

2. Alexander Lambert, THE JOURNAL A. M. A., vol. xxxiv, 1900, p. 901.

3. THE JOURNAL A. M. A., April 23, 1904.

4. THE JOURNAL A. M. A., June 1, 1901, vol. xxxvi, p. 1540.

5. THE JOURNAL A. M. A., Dec. 16, 1899, vol. xxxiii, pp. 1534-35.

6. British Med. Jour., 1897, p. 1297.

7. Bacteriology in Medicine and Surgery, p. 515.

develop pneumococcus blood infection, and it seems probable that the serum may be a preventive of general infection, even though it may fail to influence the local process." Snively[8] says: "Our own experience with the serum has impressed us favorably. It certainly lowers temperature, relieves pain, ameliorates symptoms, shortens the attack by hastening crisis, brightens the patient, and starts him earlier and more surely on the road to recovery."

A careful review of the reports of those authors who first employed the serum reveals the fact that the doses administered were too small, in view of later experience, to prove of practical utility, and I shall therefore pass over the earlier writers. In recent years, as before stated, a manifest tendency to massive doses at frequent intervals has been observed. Furthermore, the only promising results furnished by the literature have been obtained from the latter mode of administration.

J. C. Wilson and H. F. Page,[9] as a result of its use in a series of 18 cases, state that the effect upon the temperature and respiration was not marked. Defervescence occurred by crisis or by rapid lysis, the average day of normal temperature being the tenth. They conclude that these clinical studies have not been satisfactory, and "it has been determined to abandon for the present the treatment of pneumonia by the antistreptococcic serum in the wards of the German Hospital." Writes Lambert:[10] "The pneumonia serum at present does not seem to shorten the duration of the disease, nor cut short the pneumonic processes in the lungs, nor bring about the desired 'crisis.' But it does seem, in certain cases, to prevent a general pneumococcus septicemia, and thus in these cases it may save life." This observer continues: "I have not persisted in the use of the serum because I could not see that it shortened the duration of the disease nor held in check the pneumonic processes within the lungs. In one or two patients I honestly believe it did marked good; in others it was useless."

The last-named authority refers to favorable results reported by Italian physicians, who found that Pane's turkey serum produced a lowering of the temperature, improvement in the pulse and a diminished death rate, as compared with the results of any other known method of treatment. Per contra, the disease as a rule ran the usual course of six to ten days. Those Italian clinicians who expressed contrary opinions seem to have done so on theoretical grounds or have employed it in minute doses. Goldsborough[11] confidently affirms that the serum possesses a curative effect if administered early and in large doses. He adds: "I should feel culpable to a great degree had I a case of pneumonia and failed to use the serum."

My own experience of the use of antipneumococcus serum is limited to six cases. In not a single instance did the results justify its employment. The principal effect consisted of a slight primary reduction of temperature, although invariably a rise to the former degree of elevation occurred. A premature crisis was not observed in any case, but, as stated above, a notable delay occurred in two instances. The essence of my personal experience is to the effect that, judged by its merits, the serum treatment, as at present conducted, is undeserving of popular favor.

EFFECT OF THE SERUM ON THE CRISIS.

It may be stated that favorable terminations with crisis often occur, but there is no evidence of any specific effect in hastening a true crisis. Certain writers have adduced the claim that when the serum is employed early the pneumonic process may be aborted; in other words, that a premature crisis may be brought about at the end of twelve or twenty-four hours instead of the usual period in the course of the disease. In two of my own cases in which the antipneumococcal serum was administered, the crisis was greatly delayed; it occurred on the fourteenth and sixteenth days respectively. Lara[12] has used both rabbit and dog serum in ten cases of pneumonia and affirms that the crisis occurred on the third to the fifth day in all. Lambert employed his own serum in twelve cases of pneumonia; it did not cause a crisis in any case nor seem to cut short the pneumonic process.

If the serum possessed a truly specific action it would tend to bring about a crisis by successfully combating the toxemia and pneumonic septicemia. It is to be recollected, however, that pneumonia is not uniformly due to the same organism, hence no form of antipneumococcic serum could be expected to produce a specific, therapeutic effect (i. e., induce an artificial crisis) in all cases.

It may be reasonably claimed that an efficient antitoxin would induce a rapid fall of temperature or premature crisis. In this way the course of the disease would be greatly abridged and convalescence less protracted owing to the short duration of the illness. Unfortunately, as previously stated, the sum total of human experience with this agent contradicts any noticeable influence on the crisis.

NECESSITY FOR A MORE UNIFORM MODE OF ADMINISTRATION OF THE SERUM.

It is to be regretted that the profession has not adopted a standard mode of administration with a view to obtaining uniformity of results. Since the antipneumococcus serum is employed to neutralize the pneumotoxin, the question of dosage must be one of first importance. The great majority of authors emphasize the fact that massive doses should be administered at the earliest possible moment and repeated at intervals of about eight hours. Says Washburn:[13] "I would suggest that the injections be made twice a day until the patient is convalescent, and it is important to commence the treatment as early in the disease as possible." Snively found that the action of the serum is favorable, especially in early cases, and markedly so where there is not mixed infection and where a freshly-drawn serum is available, and where it is used in sufficiently large doses. McFarland[14] confirms the same view. He states: "We found that small doses of the serum did but comparatively little good; it should be administered ad libitum until a large total amount of serum is given."

Tyler administered the serum in 20 c.c. doses every six hours in six cases. It was given to pneumonia patients regardless of the general condition of the patient or the stage of the disease. The administration of antipneumococcic serum to pneumonia patients that might be considered hopelessly ill, or at an advanced stage, is not to be encouraged and advised. We may expect *a priori* the serum to yield the best results when administered early or before a pneumococcic septicemia is developed. The best results have also followed the exhibition of large quantities of newly-made serum. Rosen-

8. Proceedings of the Philadelphia County Medical Society, vol. xxii, No. 3, p. 154.
9. Therapeutic Monthly, July, 1901.
10. THE JOURNAL A. M. A., vol. xxxiv, 1900, p. 902.
11. THE JOURNAL A. M. A., June 28, 1902.
12. Lambert, Alex.: THE JOURNAL A. M. A., vol. xxxiv, 1900, p. 903.
13. British Med. Jour., 1897, p. 512.
14. Ibid., 1900, p. 600.

Cases treated by	No. cases treated.	No. of recoveries.	No. of deaths.	Per cent. of deaths.	References.
Klemperer, G.	6	6	..	.....	Berl. klin. Wochenschrift, 1891, xxviii, 869.
Ibid.	20	20	..	.....	Wien. med Woch., 1892, xlii, 862.
Neisser	3	3	..	.....	Deutsche med. Wochenscrift, Berlin, 1892, xviii, 593.
Foa	1	1	..	.....	Semaine med. Paris, 1891, xi, 440.
Hughes, W. E., & Carter, W. S.	1	1	..	.....	Therap. Gazette, Philadelphia, 1892, xvi, 668.
Audeoud, H.	3	3	..	.....	Revue Med. de la Suisse Roman de Geneva, 1893, xiii, 130.
Janson, C.	10	9	1	10.0	Hygiea, Stockholm, 1892, liv, 368.
Lava, G.	10	10	..	.....	Gior. d. r. Accad. di Med. Turin, 1893, xii, 33.
Washburn and others	6	6	..	.....	Brit. Med Jour., 1897, 1849.
Spurrell	1	..	1	100.0	Brit. Med. Jour., 1897, 973.
Cooke, A.	2	2	..	.....	Brit. Med. Jour., 1899, 1278.
Hartnett	1	1	..	.....	Brit. Med. Jour., 1897, 1279.
Weisbecker	21	21	..	.....	Münch. med. Wochenschrift, 1898. pp. 202, 238.
(Clinic)	14	12	2	14.3	De Renzi, Riv. Clin. e Terap., Naples, 1896, xviii, 503.
Pane, N., and De Renzi	23	21	2	8.6	Riforma Med., Rome, 1897, pt. 2, 40.
Maragliano	5	..	..	?	Pane, Gazz. d. Osp., Milan, 1898, xix, pt. 2, 1321.
Capua	1	1	..	.....	Pane, Gazz. d. Osp., Milan, 1898, xix, 132.
Monda	3	3	..	.....	Pane, Gazz. d. Osp., Milan, 1898, xix, 132.
Ferrara	1	1	..	.....	Pane, Gazz. d. Osp., Milan, 1898, xix, 132.
Rossi, G.	1	..	1	100.0	Pane, Gazz. d. Osp., Milan, 1898, xix, 132.
Pecoraro	1	1	..	.....	Pane, Gazz. d. Osp., Milan, 1898, xix, 132.
Fazio, F.	1	1	..	.....	Pane, Gazz. d. Osp., Milan, 1898, xix, 132.
De Renzi	1	1	..	.....	Pane, Gazz. d. Osp., Milan. 1898, xix, 132.
Nascimbene	1	1	..	.....	Sieroterapia, Rome, 1898, ii, 4.
Sciandone	5	5	..	.....	Sieroterapia, Rome, 1898, ii, 25.
Carus and Stagnitta	2	2	..	.....	Sieroterapia, Rome, 1898, ii, 41.
Muzzorleli	1	1	..	.....	Sieroterapia, Rome, 1898, iii, 13.
Bondi	22	19	3	13.6	Cited by Tomasini, loc. cit.
Massalongo and Franchini	10	?	?	?	Riforma Medica, Rome, 1898, ix, 246.
Marone, A.	1	1	..	.....	Riforma Medica, Rome, 1898. i, 582.
Croce, S.	1	1	..	.....	Gazz. d. Osp. Milan, 1898. xix, pt. 1, 375.
Cantieri, A.	17	15	2	11.8	Clin. Med. Ital., Milan, 1898, xxxvii, 689; also Riforma Med., Rome, 1898, iv, 246.
Bruchi, C.	1	1	..	.....	Cantieri, loc. cit.
Bargellini	1	1	..	.....	Cantieri, loc. cit.
Pacchiotti, F.	1	1	..	.....	Cantieri, loc. cit.
Aiello, S.	4	4	..	.....	Gazz. Med. Sicil., Catania, 1899. ii, 13.
Recupito	1	1	..	.....	N. Riv. Clin. Terap., Naples, 1899, ii, 79.
Margotta, C.	1	..	1	100.0	Gior. Med. d. r. Esercito, Rome, 1899, xlvii, 796.
Capri, G.	1	1	..	.....	Sieroterapia, Rome. 1899, iii, 4.
Dagnini and Silvani	6	..	6	100.0	Sieroterapia, Rome, 1899, iii, 7.
Dagnini and Silvani	8	1	7	87.5	Sieroterapia, Rome, 1899, iii, 7.
Dagnini and Silvani	11	9	2	18.2	Sieroterapia, Rome, 1899, iii, 7.
Banti and Pieraccini	21	15	6	28.6	Settimana Med., Florence, 1899, liii, 285.
Tomasini, S.	5	5	0	0	Sieroterapia, Rome, 1900, iv, 49.
Gamba	2	?	?	?	Cited by Thayer, Progressive Medicine, March, 1899, 388.
D'Ambrosio	1	1	..	.....	Cited by Tomasini (loc. cit.) from "La Moderna Cura Scientifica della Pulmonite," pub. by N. Jevene, Naples, 1899.
Ettari	1	1	..	.....	Cited by Tomasini (loc. cit.) from "La Moderna Cura Scientifica della Pulmonite," pub. by N. Jevene, Naples, 1899.
Papi	1	1	..	.....	Cited by Tomasini (loc. cit.) from "La Moderna Cura Scientifica della Pulmonite," pub. by N. Jevene, Naples, 1899.
Sacchitelli	1	1	..	.....	Cited by Tomasini (loc. cit.) from "La Moderna Cura Scientifica della Pulmonite," pub. by N. Jevene, Naples, 1899.
Vincenzi	3	2	1	33.3	Cited by Tomasini (loc. cit.) from "La Moderna Cura Scientifica della Pulmonite," pub. by N. Jevene, Naples, 1899.
Belfiore	1	1	..	.....	Cited by Tomasini (loc. cit.) from "La Moderna Cura Scientifica della Pulmonite," pub. by N. Jevene, Naples, 1899.
Spolverini, L. M.	11	8	3	27.3	Bull. d. r. Accad. Med., Rome, 1900, xxvi, 79.
Spolverini, L. M.	9	9	..	.....	Bull d. r. Accad. Med., Rome, 1900, xxvi, 79.
Spolverini, L. M.	7	6	1	14.3	Bull d. r. Accad. Med., Rome, 1900, xxvi, 79.
Silva	5	3	2	40.0	Quoted by Belfanti and Zenoni, Lavore Cong. di Med. Interna, Rome, 1899, p. 218.
Rodini, T.	2	2	..	.....	Ibid., Rome, 1899, p. 378.
Lambert	12	9	3	25.0	THE JOURNAL, A. M. A., Chicago, 1900, xxxiv, 900.
Bozzolo	5	4	1	20.0	Cited by Lambert, loc. cit.
Fanoni, A.	18	17	1	5.5	Pediatrics, N. Y., 1900, ix, 393.
Elfstrom, C. E.	14	11	3	21.4	Brooklyn Med. Jour., 1900, xiv, 603.
Rosenthal, E.	2	2	..	.....	Jour. of Scientific Medicine, Chicago, Jan., 1900, ii, 23.
Canby, Everhart Frey	4	4	..	.....	Maryland Med. Jour., Baltimore, 1900 113.
Wilson, J. C.	18	14	4	22.2	THE JOURNAL A. M. A., Chicago, 1900, xxxv, 595.
Kelly, A. O. J.	1	..	1	100.0	Ibid., p. 599.
Rochester	1	?	?	?	Boston Med. and Surg. Jour., 1900, cxlii, 639.
Tyler	6	5	1	16.7	THE JOURNAL, A. M. A., Chicago, 1901, xxxvi, 1540.
Holmes	1	..	1	100.0	Ibid., p. 1544.
Sweeney, E. A.	1	1	..	.....	Trans. Luzerne Co. (Pa.) Med. Soc., 1901, ix, 147.
Sears, G. G.	12	8	4	33.3	Boston Med. and Surg. Jour., 1901, cxlv, 639.
Eichberg, J.	6	5	1	16.7	American Med., Philadelphia, 1902, iii, 690.
Talamon, Ch.	50	43	7	14.0	Med. Moderne, Paris, 1901, xii, pp. 65, 73.
Raynaud, L.	1	1	..	.....	Ibid., 1901, xii, 99.
Landrieux and Legros	10	8	2	20.0	Rev. Gén. de Clin. et de Therap. Jour. des Praticiens, Paris, 1901, xv, 785.

Summary (including 61 cases treated with the antidiphtheria serum):

Total recoveries	377	Total cases	447
Total deaths	70	Percentage of deaths	15.7

From a review of the literature and personal experience, I have added to the above list of Goldsborough, the following 88 cases:

Cases treated by	No. cases treated.	No. of recoveries.	No. of deaths.	Per cent. of deaths.	References.
Wilson and Rosenthal	1	..	1	100.0	Therapeutic Monthly, July, 1901.
Wilson and Page	18	12	6	33.3	Therapeutic Monthly, July, 1901.
Snively	6	5	1	16.6	Proceedings of the Philadelphia Co. Med. Soc., 1901, xxii, 141.
Little	1	1	..	.....	Lynn, Mass., Dec. 1, 1900.
Rosenthal	9	7	2	22.2	Med. News, Dec. 1, 1900.
Jones	14	13	1	7.1	Baltimore, 1901.
Bosley	1	1	..	.....	Baltimore, 1901.
Bunte	2	2	..	.....	Philadelphia.
Smith	1	1	..	.....	Galveston, Texas.
Goldsborough	9	7	2	22.2	THE JOURNAL, A. M. A., June 28, 1902.
Crandall	3	2	1	33.3	Philadelphia.
Vandeboncoeur	17	17	..	.....	Syracuse Acad. of Surgery. Oct. 22, 1901.
Anders J. M.	6	5	1	16.7	Not previously published.

SUMMARY.

Total recoveries	73	Total cases	88
Total deaths	15	Percentage of deaths	20.9

In summarizing the cases tabulated by Goldsborough and the figures given in my own table, the following results are obtained:

Total recoveries	450	Total cases	535
Total deaths	85	Percentage of deaths	18.3

thal[15] has pertinently pointed out that none of the foreign antipneumococcic serums or antistreptococcic serums are reliable, since they must lose their efficacy before reaching practitioners in this country. Fortunately, the antipneumococcic serum is perfectly harmless and does not prevent the simultaneous use of other methods of treatment. Injections should be made into the subcutaneous tissue and strict aseptic precautions should be observed.

CONCLUSIONS.

1. A sufficiently extensive trial of the antipneumococcal sera has been made to determine with a reasonable degree of accuracy their efficiency, and the results, as a whole, fail to carry conviction.

2. An efficient serum, or one that will cut short the pneumonic process, is yet to be produced, although according to some clinicians, the sera available at present have a restricted field of usefulness.

3. Recent observers have employed the serum in massive doses from the commencement of the disease without gratifying results.

4. The practical results of the use of antipneumococcus serum, as shown by the very slight reduction in the mortality percentage, does not warrant its general introduction.

5. The sera thus far found possess no antitoxic qualities, and their supposed anti-infectious properties have not been proven.

6. Further investigations into the subject with a view to discovering an efficacious serum are to be strongly advised and encouraged.

DISCUSSION

ON PAPERS BY DRS. DOCK, SOLIS-COHEN AND ANDERS.

DR. F. R. WEBER, Milwaukee, Wis.—In considering the subject of pneumonia we are apt to conceive of it as a toxemia. It has been referred to as a complex disease, a proteinemia and toxemia. In order to study this disease we must approach it from the point of view of experimental physiology. Observers, especially French, have taught us that the pneumococcus has among its products some which have an especial effect on the arterial circulation. These products, which the French call ectosins, produce a paralysis of the vasomotor nerves. This paralysis is the first thing which we notice in going into the sick-room. There is a peculiar pallor and loss of turgescence of the face; the abdominal viscera appear to be turgid, and we have all the symptoms of vasomotor dilatation. This has nothing whatever to do with the condition of the heart muscle. When the heart muscle is affected we have disturbance of rhythm of the pulse, dyspnea, and the symptoms of beginning myocarditis. In our treatment we should observe particularly this effect of the products of the pneumococcus on the arterial circulation. One can also study the effect of the application of the ice-bag. If the experiment be made with the moist chamber, under proper conditions of heat, the heart of a dog can be kept beating for an hour or more. Defibrinated blood can be passed through the heart, and various medicaments may be added to it and their effects studied. We see that when the ice-bag is used the amount of blood passed into the veins is increased from 30 to 40 per cent. The application of the ice-bag, therefore, increases the work of the heart. The effects of strophanthus, digitalis, barium chlorid and other agents can also be studied. Thus it has been found that digitalis has some effect on the heart muscle, but more on the vasomotors. It also contracts the coronary artery and thus reduces the amount of blood going to the heart itself. We should not, therefore, apply the ice-bag to act on the heart muscle when digitalis is given. Barium chlorid is always reliable; according to German investigators, if three or four doses a day are used dilatation of the heart muscle and vessels is prevented; it does not interfere with digitalis, and one can keep up the action of digitalis by combining it with barium chlorid.

DR. T. POTTER, Indianapolis—We gain our clue to the study of pneumonia by the study of the crisis, that most remarkable event in its clinical history. The more we study the crisis of pneumonia the more we become impressed with the significance of the toxemia. Aside from any complication that may appear there are three things that stand in the foreground, the embarrassment of the respiration, the mechanical strain on the heart and the evidences of toxemia. The more we study the crisis the less we are impressed with the importance of the mechanical strain on the heart. When a patient has one or two lobes filled with exudation, so long as he keeps quiet he is in no special danger from embarrassment of respiration; but how about the mechanical strain of the heart? Do we not see in cases with large pleural effusion the lung contracted, and yet the heart does not suffer greatly from strain? Even where the effusion accumulates rapidly, if these people keep quiet there is little danger; it is very rare for such people to die of heart failure. Then again we have the treatment of tuberculosis by injecting nitrogen into the pleural cavity, where one lung is quickly made useless for the time, and yet these patients do not die of heart failure. There must be some other cause of heart failure than the mechanical disturbance. At night we leave the patient suffering with dyspnea, with laboring heart, in a condition of great danger hovering between life and death. In the morning we find him apparently convalescent, all the symptoms relieved, but the condition of the lung is about the same. Something has happened in the night that has relieved the strain on the heart, but it is not a change in the mechanical condition. The more we study the crisis of this disease the more we are convinced that we have to deal with a toxemia, and in our therapeutics we want an agent to counteract it. While I realize that the fight we have is a fight for the heart and approve of means for sustaining the circulation, yet what is wanted is an antitoxin for pneumonia that will do what diphtheria antitoxin has done for that disease; and the phenomena of the crisis show what may be expected from such an immunizing agent.

DR. H. C. WOOD, JR., Philadelphia—We might as well confess the truth even though it is unpleasant. The death rate from pneumonia is the same to-day that it was fifty years ago. While the death rate from typhoid fever and other acute diseases is falling off that of pneumonia is the same. I know that Dr. Cohen will say that we are not dealing with statistics but with individuals, but statistics deal with individual cases, and our statistics would be better if our results were. The truth of this is shown by the very bedlam of therapeutics: Veratrum viride, aconite, digitalis, quinin, creosote; in fact, nearly every drug in the Pharmacopeia has been used in pneumonia. Dr. Anders has just told us that the serum treatment is of very little use in pneumonia. Symptomatic treatment is all we have to fall back on, keeping in mind the toxemia and the strain on the heart. Now, the drug that will carry the patient through the trouble is something which will keep up the power of the right side of the heart. Unfortunately, we know very little of the action of drugs on the right side of the heart. We do know, however, that the great cardiac stimulant, digitalis, does not affect the right side of the heart as it does affect the left side of the heart. I am pleased to know that Dr. Cohen's clinical experience confirms the truth of my laboraory experience. The drug that I have found to have the greatest effect on the right side of the heart is nitroglycerin.

DR. DAVID S. FUNK, Harrisburg, Pa.—Dr. Wood spoke of the search for drugs to sustain the right heart in pneumonia. As we all know, there are cases in which the onslaught of the disease is so sudden and terrific that the right heart seems to be overwhelmed because of the resulting obstruction to the pulmonary circulation. This is evidenced by a full bounding pulse, and cold extremities with cyanosis of the lips and face. My experience inclines me to believe that the physician, when

15. Medical News, vol. lxxvii, 1900, p. 851.

confronted with this condition, is not doing his whole duty unless he practices venesection. I am sure I have seen lives saved by having had recourse to this measure—taking about sixteen ounces of blood from the arm.

DR. W. R. WHITE, Providence, R. I.—I would feel exceedingly gratified if some of the teachers present would refer to that terrible form of acute pneumonia in which the most marked symptom is a type of delirium which is active, violent and apparently beyond control. In almost all the cases that I have seen of this type the end was fatal. It was practically acute mania. The underlying symptoms do not seem to be severe; the pulse is good, the pulmonary signs are not very marked, but the chief symptom is this mania. The patient seems to be overwhelmed by the nervous struggle. What is to be done for these cases?

DR. J. O. STRANAHAN, Rome, N. Y.—We have just heard that the primary effect of the toxins in pneumonia is a paralysis of the vasomotor nerves. One drug that has been useful in my hands in overcoming this effect is ergot, which I use freely in this disease. It should be used in full doses, enough to overcome this vasomotor paralysis. I give two drams of aqueous solution hypodermically every two hours. It keeps up the tension of the pulse. There is always a low tension pulse in pneumonia. My experience is that if you keep this up you do not have dilatation of the right heart. Ergot is the best means of overcoming the delirium which Dr. White has mentioned. I recall a case that had a temperature of 106.3, and the whole lower lobe was consolidated and part of the upper lobe. I gave him two drams of ergot in watery solution. This was given every two hours for forty-eight hours. He showed improvement from the first dose and became more quiet, although he had been highly delirious. His crisis came a little early, on the seventh day, and he recovered. I have had several experiences of this kind illustrating the value of ergot in acute pneumonia. It has proved very efficacious in my hands, and I wish to recommend it.

DR. O. T. OSBORNE, New Haven, Conn.—In New Haven, as in Chicago, we have studied the distribution of the disease in all parts of the city, and have found that pneumonia follows congestion of population. As regards climate, it is more prevalent when there is dust in the air; we found that there is no pneumonia so long as there is snow on the ground. When we take a map of the city showing the distribution of pneumonia and compare it with a similar map of tuberculosis, we observe that they both observe the same law of following the points of congestion of the population.

DR. GEORGE DOCK—I was very glad that Dr. Weber brought out so clearly the vasomotor conditions of the disease, for, although we all speak of it as a condition of heart failure, it is generally admitted that it is not so much heart failure as vasomotor failure that we have to deal with. From that point of view ergot is useful. And from that point of view strychnia also receives support. In regard to the delirium, of course I realize that these cases are extremely serious. Some of these cases have meningeal symptoms, and the pneumonia may be secondary. Many are relieved by the ice-bag to the thorax. They are very good subjects for cold bathing; they may be put in the bath at a temperature of 70 or 65. In older persons the bath can begin at 85 or 90 and be reduced by five degrees each subsequent bath. If one only watches these patients and sees how they are improved, he will have more confidence in the treatment and courage to carry it out.

DR. S. SOLIS-COHEN—The questions of therapeutics in pneumonia can not be settled by any statistics now at our command, because these statistics do not make the distinctions that have to be made. Young persons and old persons, the robust and the weak, drunkards and abstainers, cases of terminal infection in various diseases, pneumococcus and other kinds of general and local infection are lumped together as pneumonia in statistics, and results in cases so varied, thus aggregated, can not be made the basis of any rational therapy. Moreover, the stages of the morbid processes at which treatment of any given order is instituted are not set forth in the tables. I would welcome a trustworthy antitoxin, but we have none such as yet. We are reduced at present to symptomatic treatment, and because individual cases vary so, we can not observe fixed rules. One patient needs alcohol, another aconite, another digitalis, another venesection, another external heat, another cold bathing, another cold sprinkling. Cold sprinkling will often overcome the delirium in the class of cases inquired about by Dr. White. We get much less objection from the patient and his friends to sprinkling with ice water than to the bath. It should be a very brief application, from three to five minutes, accompanied with brisk friction, and used for effect on nervous symptoms without regard to febrile temperature. In other cases of the kind venesection and saline infusion may bring about marked relief.

DR. O. T. OSBORNE, New Haven, Conn.—It is possible that many reported deaths from pneumonia are not really caused by pneumonia. Since insurance companies are so strict, it may be that a great many deaths from tuberculosis are reported as from pneumonia.

LATENT AND AMBULATORY PLAGUE.

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Pathologist in the Bureau of Government Laboratories.
Assisted by
CHARLES B. HARE,
Bacteriologist in the Biological Laboratory.
MANILA, P. I.

From the Government Biological Laboratory, Manila, P. I.

On Aug. 21, 1903, Mr. Henry A. Blake,[1] Governor of Hongkong, addressed a communication to the Secretary of State for the Colonies, entitled "Bubonic Plague in Hongkong; Memorandum by His Excellency the Governor, on the Result of the Treatment of Patients in Their Own Houses and in Local Hospitals During the Epidemic of 1903." The writer of the memorandum makes some very startling assertions as to the danger of the spread of plague by animals of the most varied kinds and also comes to the amazing conclusion that there existed in Hongkong during the period of time intervening between June 23 and July 10, 1903, between 8,000 and 9,000 or more cases among the native population, in which plague bacilli existed in the circulating blood in spite of the absence of all clinical symptoms of the disease. The Governor calls this condition "latent plague" and considers it a potent factor in the spread of the disease and a factor which can not, of course, be reached by the ordinary methods employed to limit the spread of and possibly to suppress plague.

Fully to understand the assertions of the Governor of Hongkong it will be well to quote a few paragraphs from his memorandum, which read as follows:

We have from Professor Simpson's report evidence that pigs, calves, sheep, monkeys, geese, ducks, turkeys, hens, pigeons and rats are susceptible to plague, which may be contracted by food or by inoculation direct, or by means of suctorial insects. To this list the examination mentioned above adds bugs, spiders, flies and cockroaches. I may add that quails kept in the market for sale were also found to be infected. In paragraph 22, page 100, Professor Simpson points out that domestic animals suffer from chronic plague and surmises that this is probably one of the bridges by which the interval of the attacks in man is connected. I have for a considerable time been of the opinion that man himself is subject to chronic plague, which may either pass away after a considerable time, or continue dormant over the winter months, regaining activity with the annual movement of spring, when the curve of the epi-

1. Henry A. Blake: Bubonic Plague in Hongkong. Memorandum by His Excellency the Governor on the result of the treatment of patients in their own houses and in local hospitals during the epidemic of 1903. Hongkong. Printed by Noronha & Co., government printers. 1903.

demic is almost constant. This opinion was strengthened by the fact that in August, 1899, the body of a Chinese lift-man at Queen's buildings, who was accidentally killed when attempting to enter the lift while in motion, was found to contain plague bacilli. A similiar result followed the examination of a man who, on March 4, 1901, was killed at Tal Koo sugar works by a bag of sugar falling on his head from a height of 20 feet; while on April 2, 1903, in the body of a chief steward of a ship lying in dock, found floating with a large wound on the head, were also found plague bacilli. Early in June several men from H. M. S. *Ocean* were sent to the Naval Hospital, suffering from pneumonia; on examination of their blood seven were found to be suffering from mild cases of plague. In like manner two officers of the Sherwood Foresters who developed feverish symptoms were, on having their blood examined, found to be similarly affected. In the *Boletin Oficial* of Macao, containing the report of the plague epidemic, 1895, Dr. Gomes de Silva, the medical officer who published the report in 1895, stated that during the height of the epidemic he had discovered plague bacilli in his own excreta.

Sec. 21. In June I directed Inspector Gidley to obtain as many specimens of blood as possible, on slides secured from the government bacteriologist. He obtained 110 specimens from men, women and children taken at random. These slides were sent to Dr. Hunter for examination, who reported that in five slides he found plague bacilli, and in seven "bacilli were present in considerable numbers, some of which showed bipolar staining. They were not sufficiently distinctive, however, to be regarded as *Bacillus pestis*." These slides were obtained between June 23 and July 10. Since they were obtained there were but three cases of plague in the district, from none of which a specimen of blood was taken.

Sec. 22. I am not unmindful of the fact that these reports were the result of microscopic examination only. But the examination was the same as that on which a great many of the cases treated in the Kennedy Town Hospital were sent to that institution, where their cases ran the usual course of plague invasion.

Sec. 23. Now, putting aside the seven doubtful slides, it will be seen that of those people examined at random 4.54 per cent. were found to be infected with plague, though to all appearances perfectly healthy. If we exclude all the well-to-do, and take the working coolie population alone, they probably number 180,000, and, assuming the same average amount of infection, there are among that class alone 8,172 persons at present infected in Hongkong. If even a quarter of that average be accepted for the 105,000 inhabitants of the superior class, the number of infected will be increased to 9,634. In appendix G will be found the number of rats examined in each month of the present year, with the proportion of infected rats. I am afraid that the incidents mentioned in paragraph 5 weaken deductions as regards Hongkong. But from whatever source the rats were procured the proportion of infection in June was 9 per cent., or 4.46 per cent. more than the percentage of the slides examined; or, if doubtful cases mentioned by Dr. Hunt be included, 1 per cent. less, while in January the proportion falls to .8 per cent. This being so, with the complete circle of vermin, insects, food, rats, domestic animals and man all infected in possibly similar, possibly different, proportion, it appears to me unsound to concentrate attention on the rat as the principal means of bridging over the dormant season.

It appears that Governor Blake, after writing the above, felt the great danger of coming forward with so sweeping an assertion, and in the introduction to his memorandum he himself makes an appeal for a more thorough scientific investigation of the hypothesis of the existence of latent or dormant plague among the natives of countries where this disease is endemic. He says:

My hypothesis in paragraph 23 may not bear the light of scientific investigation, as the hypothesis of a layman may not carry much weight, but I venture to submit that it is worthy of scientific inquiry, for, while a timely glass of water may prevent a great conflagration, and plague at its first introduction may be stamped out by immediate segregation and thorough disinfection, its endemicity once established this is no longer practicable, and if the hypothesis of dormant or chronic plague in man be ultimately proved to be correct it is difficult to see how quarantine for even ten days can prevent its annual recurrence, or how any practicable examination of departing passengers can prevent its export from the plague center and possible dissemination elsewhere, if suitable conditions for its propagation be present. What the remedy, or what the necessary precaution, I leave it for scientific men to determine, but if my hypothesis results in a wider radius of investigation the experiment will not have been useless.

THE RESULT OF BLOOD EXAMINATIONS IN CASES OF PLAGUE.

It is, of course, obvious to anyone versed in this kind of examinations that a diagnosis of plague can not be made by a microscopic examination of the blood. Such an examination may possibly be resorted to in urgent situations, when a rapid clinical diagnosis is desired, but to base on such a microscopic examination far-reaching deductions is certainly not permissible. What is necessary in order to determine beyond doubt the presence of plague bacilli in the circulating blood is the examination of the latter by cultural methods. We have undertaken a series of such examinations in order to determine whether or not there exists such a thing as latent or dormant plague, as suggested by the Governor of Hongkong. Before giving the details of these experiments it will be well to take a survey of the work that has been done with reference to the presence of plague bacilli in the blood in undoubted cases of this disease.

The German Plague Commission,[2] in its report, says that it made blood examinations in the case of 141 plague patients, including 17 convalescents, who were in the period of convalescence varying between the seventh and the twenty-fifth day after the disease. These examinations were made in the following manner: A drop of blood was obtained from the finger, with the usual aseptic precautions, and inoculated into agar tubes, while at the same time a cover-glass preparation was made. It was found that in a number of cases where the cultural method furnished positive results, the mere microscopic examination failed to demonstrate the presence of the plague bacilli. In 10 cases the bacilli were encountered only once, while in the case of 33 other patients sick with the plague they were repeatedly found in the blood. Of 81 patients, the examinations of whose blood were always negative, 52 recovered and 29 died. Of 10 cases in which there was a positive result only once, the other examinations being negative, eight died and two recovered. It is interesting to note that in one case the bacilli could be detected two and three days before death, while twelve hours before the crisis and at the postmortem examination it was impossible to find them. Seventeen cases of convalescent patients invariably failed to show any bacilli in the circulating blood.

Zobolotny,[3] in his researches on plague, says that the bacilli are found in large numbers in the blood of animals sick with the disease, but that in the case of human beings the bacteria are much less abundant and sometimes can not be found at all.

Musehold,[4] quoting the work of Albrecht and Gohn, reports that the latter examined 122 cases of undoubted plague. In 55 the bacilli were found by the culture

2. Bericht der deutschen Pest Commission: Gaffky, Pfeiffer, Sticker and Dieudonne. Arbeiten aus dem Kaiserlichen Gesundheitsamte, vol. xvi, 1899, p. 265.

3. Zobolotny: Recherches sur la peste. Archives des Sciences Biologiques, St. Petersburg, 1901, vol. viii, p. 81.

4. Musehold: Die Pest., Berlin, 1901, pp. 150-178.

method in the circulating blood during life. Four of these 55 cases recovered, in two of them the bacilli being present in large numbers in the circulating blood. In the case of 51 patients who died the bacilli were found in considerable numbers in the blood on the day of death as well as on the previous day.

Cairns[5] studied the blood of patients during an epidemic of plague occurring in Glasgow in 1900. He gives the results of the examinations made *inter vitam* on cases which subsequently terminated fatally. Four of these cases may be cited in connection with our investigation. In three of them juice drawn from the buboes developed pure cultures of *Bacillus pestis*. Only in one of the four fatal cases was it possible during life to obtain cultures of the bacilli from the blood. The other three cases gave negative results. In one of these seven daily consecutive examinations were made, as well as one shortly before death, all of them proving negative.

Calvert[6] studied two epidemics of plague in Manila in 1900 and 1901. He found that the clinical examination of the blood for *Bacillus pestis* gave unreliable results, it being impossible to place any weight on the negative findings. He made his examinations by taking the blood at intervals of four hours from the ears of the patients, examining it in smears as well as by the cultural method. This plan was followed until the death or recovery of the patient. Thirty-six cases, four of which recovered, were examined in this manner. Most of the cases were followed to autopsy, when the plague organism was demonstrated by culture and even by animal inoculation.

This author gives the following table of positive findings of the bacilli in the blood:

		Per Cent.
24 hours before death in	31 cases	100
48 hours before death in	7 cases	22
72 hours before death in	5 cases	16.12
96 hours before death in	2 cases	6.45
120 hours before death in	1 case	3.22

On looking over the table it appears that the plague bacilli could be found in all fatal cases twenty-four hours before death, but that forty-eight hours before death the percentage of positive findings was much smaller. In searching for the bacillus in the blood of plague patients who finally succumb to the disease the chances of finding the microbe five days before the fatal termination are only one out of thirty. All of this shows that even in fatal cases the plague bacilli are not found at an early date in the peripheral blood.

Jennings[7] says that it is extremely rare to find the plague bacillus in the blood in large numbers except immediately before death. Their absence, therefore, in the early stages of an attack is frequent, and must not be regarded as a negative diagnosis of the plague.

Terni,[8] who studied the plague in Rio de Janeiro, in an excellent article on the disease, makes the following statement:

"The examination of the blood is by no means reliable. It is astonishing that Galeotti places any value in blood examinations in the diagnosis of early plague."

Terni found that in many cases diagnosed as plague septicemia, examinations of the blood, both microscopic and by culture method, were negative. This was true even at the postmortem examination, because the bacilli were exclusively localized in the lymph channels. Even in the most profound cases, in individuals particularly predisposed to the disease, the bacilli were found in the blood in only moderate numbers. Their presence could never be compared with what we find to be true in connection with other septicemic microbes, such as anthrax or diplococci. Only in exceptional cases do we find a multiplication of the plague bacilli in the circulating blood during the agonal stage.

One of us has been studying for some time the morbid anatomy and histo-pathology of a number of cases of plague. These studies appear fully to confirm the statement of Terni to the effect that plague, as a rule, is not to be looked on as a true septicemia, but, on the contrary, as an infection, particularly confined to the lymphatic system. Even in cases where sections from the lymph glands contain innumerable bacilli, the lumina of the blood vessels are generally free from such microbes. In fact, in the study of sections from all of the internal organs, when plague bacilli are seen, they are always found in the lymph channels or lymph spaces and not in the blood vessels.

Powell[9] has recently reported the result of 3,400 blood examinations of febrile diseases in Bombay. Most of these cases were malaria, but 117 were plague. In only 15 of the latter were the bacilli easily seen in blood smears. With reference to the finding of the bacilli in the blood in cases of plague, the author says: "As regards the recognition of the plague bacilli in the finger blood, for some years I was very skeptical about the reports of certain medical men, and until within the past 18 months had been unable to detect the bacilli except on cultures. At the beginning of this year there was a particular type of septicemic plague, in which the bacilli were found in every case. Such patients, in my experience, always died. One seemed to be convalescent and had a normal temperature for three days, but suddenly died. Plague bacilli were found 11 days before death.

In looking over these statements (all that we can find in the literature at our disposal), one is certainly impressed with the fact that the finding of plague bacilli in confirmed cases of the disease, except very shortly before death, or in the rarer cases of plague septicemia, is the exception and not the rule. Indeed, we should be mindful of the fact that plague, as a rule, is not a true septicemic, but a bacterial infection localized in the lymphatic system. It is, therefore, from a purely theoretical standpoint, highly improbable that there should exist a dormant, latent clinical form of the disease, in which patients harbor the bacilli in the circulating blood.

Our investigations to determine whether such is the case or not were made on a number of native Filipinos and Chinese of this city. We attempted to get material which, if latent plague exists at all, would give us some evidence to this effect. We selected natives from houses in which plague cases had occurred, and examined a number of inmates of Bilibid prison, particularly such as were under the most unfavorable hygienic conditions, namely, insane prisoners, and prisoners of the third class, who were most crowded in their quarters. Since we could not always get natives of this description, we selected also a number who were not under particularly unfavorable hygienic conditions, such as native police officers and native members of the constabulary.

While plague has never at any time been as widespread here as it has been in Hongkong, we have had a sufficient number of cases to make it clear that the disease is endemic, though fortunately not markedly so.

5. Cairns: On the Agglutinating Property of Blood Serum in Cases of Plague. London Lancet, 1901, June 22, p. 1746.

6. Calvert: Plague Bacilli in the Blood. Centralb. f. Bakteriologie. I Abath. Originale, vol. xxxiii, No. 4, p. 247.

7. Jennings: Manual of Plague. London, 1903, p. 112.

8. Terni: Studien ueber die Pest. Zeitschrift f. Hygiene u. Infektionskrankheiten, 1903, vol. xliv, p. 151.

9. Powell: The Blood Examination in 3,400 Cases of Febrile Diseases in Bombay. Indian Medical Gazette, Calcutta, February, 1904, vol. xxxix, No. 2, p. 41.

PREVALENCE OF THE PLAGUE IN MANILA FROM 1900 TO 1904.

According to the *Monthly Sanitary Reports* of the Board of Health, plague has prevailed in Manila since 1900 to the following extent:

1900.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of Cases.	Total No. of Deaths.
January	3	15	0	18	11
February	36	12	0	48	35
March	52	12	0	64	48
April	43	11	0	54	44
May	13	7	2	22	18
June	14	5	0	19	11
July	5	8	0	13	7
August	8	9	1	18	11
September	6	0	0	6	9
October	5	2	0	7	5
November	1	0	0	1	0
December	0	1	0	1	0
Total	186	82	3	271	199

1901.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of Cases.	Total No. of Deaths.
January	4	3	0	7	5
February	15	11	1	27	20
March	49	14	0	63	51
April	73	38	0	111	91
May	97	40	0	137	124
June	24	30	1	55	54
July	18	20	1	39	38
August	12	16	1	29	26
September	7	4	0	11	12
October	0	0	0	0	0
November	0	0	0	0	0
December	1	4	1	6	6
Total	300	180	5	485	427

1902.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of Cases.	Total No. of Deaths.
January	0	0	0	0	0
February	1	0	0	1	1
March	0	1	0	1	1
April	0	0	0	0	0
May	0	0	0	0	0
June	1	0	0	1	1
July	0	0	0	0	0
August	1	0	0	1	1
September	1	0	0	1	1
October	0	2	0	2	2
November	1	0	0	1	1
December	0	2	0	2	2
Total	5	5	0	10	10

1903.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of Cases.	Total No. of Deaths.
January	0	1	0	1	1
February	7	10	0	17	15
March	18	15	0	33	33
April	35	15	2	52	49
May	16	9	2	27	23
June	9	23	0	32	25
July	3	11	0	14	9
August	10	1	0	11	9
September	3	1	0	4	4
October	3	0	0	3	2
November	0	2	0	2	2
December	0	2	0	2	2
Totals	104	90	4	198	174

1904.	Chinese.	Filipinos.	Americans and Other Caucasians.	Total No. of Cases.	Total No. of Deaths.
January	4	6	0	10	7
February	0	6	1	7	6
March	3	12	0	15	14
April	8	7	0	15	15
May	9	8	0	17	16
Total for five months	24	39	1	64	58

SUMMARY.

Cases of plague reported in 1900.....271, of which 199 were fatal
Cases of plague reported in 1901.....485, of which 427 were fatal
Cases of plague reported in 1902..... 10, of which 10 were fatal
Cases of plague reported in 1903.....198, of which 174 were fatal
Cases of plague reported in 1904.....*64, of which 58 were fatal

*January 1 to May 31.

It appears from these statistics that plague has been endemic in Manila during the last few years, though never attaining dangerous epidemic proportions. In 1902 the disease had almost completely died out, and during four of the months of this year not a single case came under observation. Since August, 1902, however, until the time of writing the present report, there has not been a month entirely free from plague, though the figures have generally been low, the maximum during this period being reached in April, 1903, when 52 cases of the disease were reported.

The object in giving these figures in connection with our report is to show that plague has been sufficiently prevalent here for several years so that blood examinations should furnish evidence of latent plague, provided that such a form of the disease exists at all.

The figures of plague morbidity for Hongkong[10] during the same years are as follows:

In 1900.....1,086 cases
In 1901.....1,637 cases
In 1902..... 540 cases
In 1903.....1,135 cases

BLOOD EXAMINATIONS OF 245 APPARENTLY HEALTHY NATIVE FILIPINOS AND CHINESE.

The method employed to ascertain whether apparently healthy Filipinos or Chinese of Manila have any plague bacilli in their blood was as follows:

The bend of the elbow, generally of the left arm, was very thoroughly cleansed, first with strong alcohol and then with a strong solution of mercury bichlorid, and finally with alcohol or sterile distilled water. A rubber bandage was then placed around the arm above the elbow, and 1 c.c. of blood was drawn from one of the veins by the aid of a sterile hypodermic syringe. The blood so obtained was added to 50 c.c. of bouillon in a flask. The bouillon used was prepared as usual, and when neutral to litmus, .5 g. of bicarbonate of soda was added to each 1,000 c.c. of the bouillon, making it slightly but decidedly alkaline. The bouillon thus prepared forms a very excellent culture medium for plague bacilli. As a control experiment, in some of the cases twice the amount of blood was drawn from the vein, and the 2 or 3 c.c. so obtained was distributed in two flasks. One of the flasks was then immediately inoculated with a very small amount of material from a young plague culture. This was, of course, done to see whether plague bacilli, if present, would develop in the bouillon in the presence of a small amount of freshly drawn blood. It may be said that the control flasks always developed a typical plague growth. So there was evidently nothing in the arrangement of the experiment to prevent development of the plague bacilli, if present. The culture flasks to which blood had been added were kept either in a dark chest at room temperature or in a brood oven which was fairly constant at 25 C. The media were inspected daily and when a growth had developed it was examined in stained preparations and by culture on agar.

The native Filipinos whose blood was examined included 32 laborers from the Serum Institute and the morgue. The native servants of the latter, where all the plague postmortem examinations are made, are, of course, particularly exposed to infection, and would be especially prone to show latent plague, provided that such a condition exists. These 32 cases were kindly examined for us by Dr. E. H. Ruediger, bacteriologist in the Serum Institute, whose technic differed from the method generally used, only in that he employed a 5 per cent. carbolic acid solution to sterilize the elbow. Dr. Ruediger also examined all his 32 flasks by staining and by cultural methods, whether they showed any change in appearance or not.

The blood examinations in all of the 245 cases were made between March 4 and May 20, 1904, i. e., during a period in which from 35 to 40 cases of plague were reported in Manila.

10. Hongkong: Report of the principal medical officer for the years 1900, 1901, 1902, 1903. Hongkong. Printed by Noronha & Co., government printers.

The following is a summary of the blood examinations made:

On March 4 there were examined five native Filipinos from a house in Santa Cruz, in which an ambulatory case of plague terminating in embolism of the pulmonary artery had occurred. Ten native Filipino police officers were examined on April 6 and 7. Nine of these men lived in infected districts, i. e., districts in which cases of plague had recently occurred; one lived in a non-infected district. Ninety native Filipinos, members of the Philippine constabulary, were examined on April 13 to 30. These men live in barracks, but are often free to visit their families and friends. Thirty-two native Filipinos, laborers at the Serum Institute and the morgue, were examined during the first week of May. In the former place the various vaccines and sera, including plague vaccine and serum, are prepared, and in the latter are performed all the necropsies on plague cases. Fifty-eight native Filipinos, prisoners in Bilibid prison, were examined on May 12 and 13. There are confined in this place about 4,500 men. Last year a number of the inmates died from pneumonic plague. This year no case of plague has occurred there, although one of the prisoners died of pulmonary plague four days after his discharge. Of these 58 men, 16 were insane prisoners, all in advanced stages of mental disease, and the remainder were the so-called third class prisoners, who lived under the most unfavorable conditions to be found in the prison.

On May 16 to 20 there were examined 50 Chinese, small shop-keepers, clerks and coolies, either from houses in which plague cases (in one instance, two such cases) had occurred or from houses adjoining them.

RESULTS OF THE EXAMINATION.

Most of the flasks to which 1 c.c. of blood had been added remained sterile, although a few developed a growth, which, however, was clearly a contamination from the air, such as common molds or similar forms of life. One of the cases examined by Dr. Ruediger developed *Staphylococcus pyogenes aureus;* and those of two other natives examined developed a bacillus which, when examined in a stained cover-glass preparation, might possibly be mistaken for *Bacillus pestis.* One of these organisms, however, in culture looked very different from the bacillus of plague, and also kept Gram's stain. This bacillus developed in a flask to which had been added blood from one of the insane prisoners. The other growth occurred in a flask containing blood from a member of the constabulary. This organism greatly resembled the plague bacillus; but it kept Gram's stain, and when rubbed in large amounts on the shaved abdomen of a guinea-pig failed to produce any disease. In short, not in a single instance out of 245 examinations made on persons of whom a large percentage had certainly been greatly exposed to plague infection did we find a trace of evidence of the existence of plague bacilli in the blood.

From these investigations it may be safely concluded that a condition of latent or dormant plague does not exist in Manila, and there is scarcely any reasonable doubt that it does not exist in Hongkong. There certainly has not been furnished the slightest proof, of such a character as to stand the searchlight of exact methods of bacterial investigation, to indicate that there is such a thing as latent human plague, with the presence of plague bacilli in the circulating blood in the absence of clinical symptoms of the disease.

Why the Governor of Hongkong should have recourse to the untenable hypothesis of the existence of dormant or latent plague, in order thereby to explain the failure to stamp out the pest in that city, is not at all obvious. Mr. Blake himself, in his memorandum, clearly sets forth some of the circumstances which unite to make it practically impossible completely to eradicate the disease in Victoria City.

In Hongkong[1] it is the custom of the Chinese—if they can possibly do so—to throw human corpses, dead from plague, into the street, in order that they may not be found in the houses and thereby subject the inmates to quarantine, disinfection, etc. In spite of measures to prevent this procedure, the number of corpses dead from plague and so disposed of, has during the ten years preceding 1898 increased from 25.1 per cent. to 32.7 per cent.

The Chinese in Hongkong, according to the Governor's memorandum, offer passive resistance to the catching of rats in their house, being afraid that plague bacilli might be found in the rodents, as this would lead to measures of disinfection or to the requirement of repairs in the houses. The Chinese rat-catchers are said to be dishonest; they fail properly to label the rats, so that infected houses escape detection, and they import rats from the outside of Hongkong and label them at random. In general, they are very unreliable in their work and are actuated solely by the desire to secure from anywhere the largest number of rats in order to obtain the premium for them.

"To those who know how Chinese houses are constructed," says the Memorandum in paragraph 6, "it will be apparent that effective fumigation is practically unattainable; while even if the spraying process, scrubbing and disinfection of clothing reached externally everything in the room, it would not kill the vermin lying deep in the joints and cracks of the tables, chairs and settees or beds. Nor would it reach the vermin with which the heads of the poorer classes of coolies are infected. But apart from this, what took place in many cases when a case of plague was detected was that before the constable could arrive to take charge of the house goods liable to injury by disinfection were removed by the door, or if too late for this were taken on to the roof, always easily accessible, and deposited in some neighboring house."

In W. J. Simpson's report[11] "On the Causes and Continuance of the Plague in Hongkong, Etc.," which is quoted in the memorandum of the Governor, we find the following statements as to the sanitary condition in Chinese quarters in the city of Victoria:

When a case of plague has once occurred in a house there is a great tendency in subsequent years for the same house, or that adjoining, or that on the opposite side, or that close by, to be attacked with plague. When plotted out on a map, the distribution of plague appears to be closely connected with previous infection of the house or of a defined locality, the infection having been retained in an unrecognized form in the interval. The houses which suffer principally are, speaking generally, the most insanitary and the oldest. It has already been mentioned how closely packed the buildings are in the older portions of the town, narrow streets and high houses being the leading features, by which the admission of sunlight and fresh air is considerably obstructed. Narrow streets and high houses, however, are not peculiar to Hongkong; they are to be found in other towns, with their injurious effects on health; but in Hongkong there is, moreover, in the Chinese quarters a defect in the construction of houses which intensifies the obstruction of light. The rooms are long and narrow, with a window at

11. Simpson: Reports on the causes and continuance of plague in Hongkong and suggestions as to remedial measures. London: Waterlow & Sons, Limited. 1903.

each end, the front window looking into a wide and covered veranda, and the back window into a small open space at the back, which forms a sort of wall between the two houses. The lower floors of many of the houses are remarkable for their darkness, and this in a region not far from the tropics; they are also frequently damp.

Since the epidemic of 1894 many of the lower floors of the worst kind have been changed into store rooms to contain the goods and merchandise for which Hongkong is an *entrepôt*. These store rooms as a rule are infested with rats, which at times find their way up to the rooms on the higher floors. The basements are generally rat-infested, both floors and walls, and as the walls are often hollow it is easy for rats to reach the upper floors. The admission of sunlight into the dwelling rooms of Chinese tenement houses is still further obstructed by the subdivision into several cabins or compartments, sometimes numbering up to six, which every room is subjected to. Each cabin is let out to a separate tenant, and not infrequently accommodates a separate family. These compartments or cubicles are windowless and are often so dark that it is impossible for anyone, coming directly from the light outside and opening the door of the cubicle, to see at once whether it is occupied or not. Some attempts have been made to improve this state of things by limiting the height of the subdividing walls to six feet. The condition which obtained before this improvement was made is somewhat difficult to realize, for what I am describing is that which now exists. Fresh air and sunlight never get into the cubicle, except, perhaps, the compartment at each end of the room opposite the window. The subdivision of a single room into a number of rooms called cubicles is an ingenious device for crowding together a large number of people into a small space and securing a correspondingly large rental, but it is an arrangement which engenders disease and favors its spread. There is no doubt whatever that every such windowless cubicle is unfit for human habitation and should not be permitted.

Probably another cause for the continuance of the plague, besides the insanitary condition of the houses referred to, is the very inadequate number of latrines and urinals with which Hongkong is provided. The number of public latrines appears to be 29, belonging to the government, and 17 to private owners. The total number of seats is 1,202. Most of them have urinals attached, and in addition there are three small public urinals in the town. Seeing that all the men and boys go to the public latrines, and there are no sanitary appliances in the houses except earthern pots, which are used exclusively by women and children, the total inadequacy of the latrine accommodation provided is obvious. It is not one seat to 100 of the male population. On the Kowloon side of the colony the latrine and urinal accommodation is still more deficient. Large blocks of houses have been built, and not a single latrine or urinal provided by the builder of the block. It is impossible under these conditions that the ground should escape being sewage polluted. . . . The existing latrines are far from being models of what they should be. They are, in fact, insanitary in structure and deficient in light and ventilation.

Quite recently Surgeon-General Evatt, P. M. Q. H. M.'s Troops, Hongkong, has been quoted by the daily papers in an interview in which he speaks in the strongest terms of the insanitary conditions, which he holds responsible for the continued prevalence of plague in Hongkong. He calls Victoria City the plague-distributing center of the world, a standing menace to the human race. So we have the most convincing evidence, both official and unofficial, as to the vicious sanitary conditions in Hongkong. They furnish the soil in which plague thrives, from which it can not be completely eradicated, and from which it breaks forth again and again in menacing epidemic form. There is not the least necessity for assuming the existence of dormant or latent plague, as the Governor of Hongkong has done on evidence most incompetent and irrelevant.

A CASE OF AMBULATORY PLAGUE TERMINATING IN EMBOLISM OF THE PULMONARY ARTERY.

While the investigation reported above shows clearly and beyond question that latent or dormant plague in the sense in which the Governor of Hongkong used the term does not exist, it has been known for many years that occasionally cases of ambulatory plague occur. Such cases, which may be free from any marked elevation of temperature and which may be compared to ambulatory typhus, had already been reported before the plague bacillus was found, as, for instance, by Griesinger, Liebermeister, Montague, Lubbock and others.[4] Manson,[12] Scheube[13] and others have called attention to the fact that these cases of ambulatory plague are liable to collapse, and that fatal termination may occur very suddenly. However, it must not be supposed that examples of this type are latent in the strict sense of the word, because postmortem examination shows changes which existed *inter vitam*, but escaped detection in the absence of urgent subjective symptoms.

A case illustrating these points came to postmortem examination on Feb. 27, 1904. The history and findings, which are somewhat complicated by a simultaneous, evi-

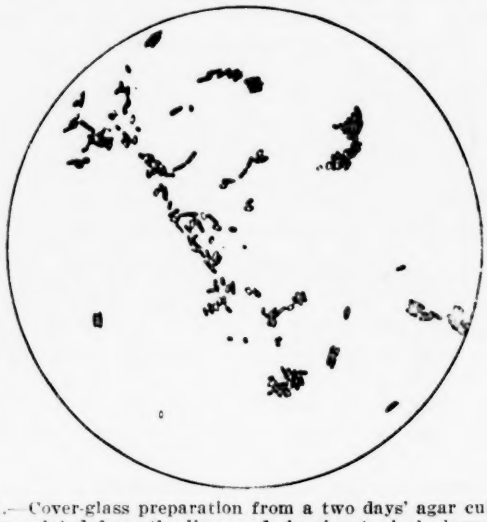

Fig. 1.—Cover-glass preparation from a two days' agar culture of plague inoculated from the liver and showing typical plague bacilli with polar staining and rounded ends, as well as early involution forms. Zeiss apochr. obj. 1/12; comp. occ., No. 6; length of bellows, 40 cm.

dently very recent, tuberculous infection, were as follows:

CASE.—The death of a Filipino lad, 17 years old, was reported to the Santa Cruz Board of Health Station, Manila, P. I., on Feb. 27, 1904, at 11 o'clock a. m. The body was found in a dimly lighted loft in the corner of a lower unpaved room adjoining a soda water factory. On examination nothing worthy of note was found, except enlargement of the glands in the inguinal region and Scarpa's triangle on both sides, as well as a chronic skin infection of both legs. The position of the body had been changed since death.

History.—The boy had been employed about the place for general purposes for from four to five months and during that time had appeared to be in good health, except that for some weeks previous to his death his face was rather pale and he did not sleep well. He spent the evening of February 26 playing in the street with other boys until 11 o'clock, when he went to bed. About 12 o'clock he awoke, complaining of pain in the chest and difficulty in breathing. His condition soon became alarming, and a physician was sent for, who, however, was unable to do anything for him. At 2 o'clock he died.

12. Manson: Tropical Diseases, London, 1903, p. 249.
13. Scheube: Die Krankheiten der warmen Laender, Jena, 1903, p. 28.

The postmortem examination was made at the San Lazaro morgue on Saturday, Feb. 27, 1904, at 3 o'clock p. m., with the following results:

Autopsy.—The body of a Filipino boy, about 17 to 18 years of age and well developed. Postmortem rigidity was well marked. Postmortem lividity was prominent on dependent parts and extended over the sides of the trunk and neck, as well as over the anterior surface of the latter. A greenish-brown, foamy, ill-smelling fluid oozed from the anterior nares. The anterior surface of the lower extremities, from the ankles upward to about midway between the knees and Poupart's ligaments, were covered with a vesiculo-pustular eruption. The lowermost portion of this eruption consisted of shallow ulcerations covered with brownish, bloody scabs. The skin lesions higher up on the thigh were still purely vesicular, and the collapsed vesicles were covered with dry epidermal scales. The chain of lymph nodes below Poupart's ligaments on both sides was swollen, the most marked swelling being found in the lower glands on each side. The swollen region felt soft and doughy. No fluctuation, however, was noticeable. On incision of the skin the superficial veins discharged a rather small amount of dark fluid blood.

The pericardium was found to be smooth and normal. The visceral layer of this organ showed dilated and congested veins. On the posterior surface over the left auriculoventricular zone there were seen from two to three dozen hemorrhagic areas, varying in size from a pinhead to a millet-seed. Otherwise the visceral pericardium appeared normal. The myocardium was fairly firm and somewhat pale. The left ventricle was contracted and the right dilated. The latter contained a rather firm, though somewhat gelatinous, reddish-gray coagulum, which did not completely fill the ventricular cavity. The coagulum was continued into the pulmonary artery, which it filled completely. It was here firmer in consistency and decidedly more grayish in color. These changes from the consistency and color of the clot in the heart became greater the farther the distance from the entrance of the pulmonary artery to the interior of the ventricle. The thrombus extended into the main branches of the pulmonary artery; from there it could be followed into the lower, secondary branch of the right side, and was then lost in the highly congested lower lobe of the right lung. A distinctly hardened, infarcted area could not be found. The blood in the left ventricle and auricle was fluid and of a dark purple color.

The lungs were found to be quite firmly adherent to the parietal pleura. The lower lobe of the right lung was particularly firmly adherent to the diaphragm. The partly obliterated pleural sacs contained a small amount of slightly turbid, yellowish fluid. The upper lobes were dark grayish-pink in color and contained a considerable amount of air. The lower lobes, particularly the posterior surface of the right, were dark purplish-blue in color and contained very little air. On section the lower lobes were found to be quite edematous and filled with a very dark, purplish fluid blood, which oozed out freely from the larger and smaller vessels. The bronchi contained a small amount of foamy, grayish-white fluid. Their mucous membranes were injected and rather bright red in color. The trachea and the larynx likewise showed a swollen, injected mucosa.

The spleen was large and bluish-pink in color. Its capsule was smooth and shining. The cut surface was dark purplish-brown. The trabeculæ and the Malpighian corpuscles were distinct. The pulp was fairly firm in consistency.

The kidneys were rather small, and their surface smooth and of a dark grayish-pink color. The capsules peeled off easily, and the denuded surface then showed the small vessels to be very much injected. They stood out plainly on a grayish-yellow background. On section the vasa recta and the glomeruli appeared quite strongly injected and intensely scarlet. The tubules were quite markedly yellowish-gray, the surface on the whole being rather dull. The pyramids were purplish. The mucous membrane of the pelves was smooth and somewhat congested.

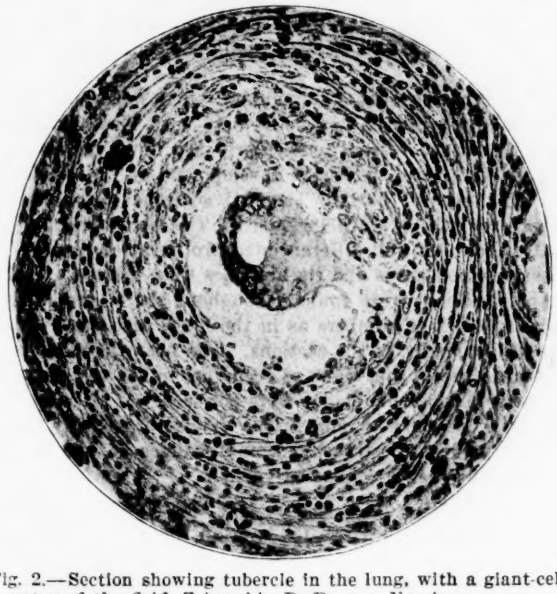

Fig. 2.—Section showing tubercle in the lung, with a giant-cell in the center of the field, Zeiss obj., D. D., occ. No. 4.

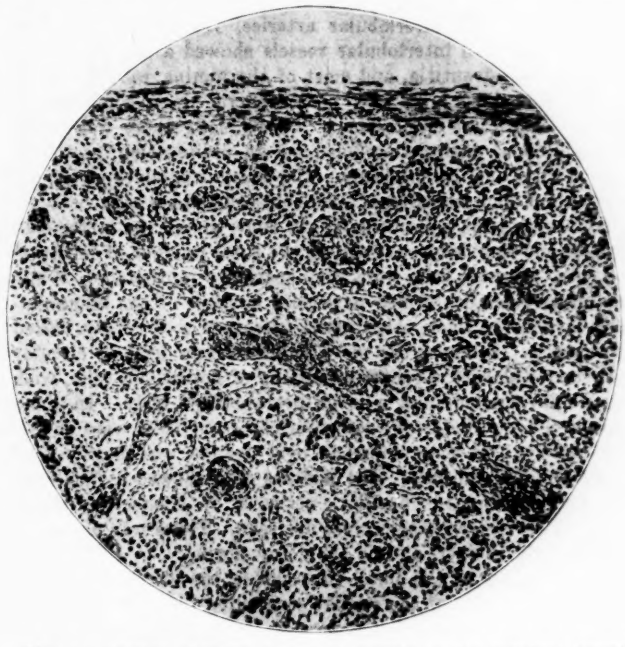

Fig. 3.—Section showing congested vessels in the inguinal lymph node. Zeiss obj. A. A., comp. occ. No. 6.

Liver: The capsule was smooth, shining, transparent and pinkish-gray in color. Some areas were decidedly mottled. The cut surface showed the center of the lobules to be grayish-white. The lobules were rather distinct in outline. The surface as a whole was dull. The veins contained much dark fluid blood. The gall bladder contained some turbid, greenish-yellow bile. The mucous membrane was smooth. There were no stones. The ducts were normal.

The stomach and intestines appeared fairly normal. The suprarenals and the pancreas were normal.

The inguinal glands on both sides were enlarged, swollen, soft and rather dark bluish-pink in color. On section they showed injected vessels which stood out prominently on a grayish-yellow background. The substance of the glands was soft. No abscess formation had occurred. An abundant turbid, grayish-white fluid could be scraped from the cut surface. The lower glands of the chains on each side were the largest, showing quite markedly a central softening. There was, however, no abscess formation. These glands were about equal in size and measured 4.8x3.7x1.7 cm.

The mesenteric, the cervical and the other glands examined were all moderately enlarged and more or less congested. Marked congestion existed in the bronchial glands.

Smears were made during the postmortem examination from the liver, spleen and the glands. In the smears from the spleen and the glands only a very small number of bacilli were found. They were more numerous in the smears from the liver. Some of the bacilli found in the latter were quite typical in appearance, showing polar staining and rounded ends. Other bacilli were swollen and somewhat irregular, and approached in type the involution forms seen on artificial media. Still others were small and looked decidedly like diplococci. Others formed small chains, the individual members of which appeared to be in a state of partial dissolution. The culture tubes inoculated from the organs developed typical plague bacilli.

Histologic Findings.—Pieces of tissue were fixed in Zenker's solution and subsequently sectioned and stained with various dyes, including Weigert's stain for elastic fibers, Weigert's fibrin stain, Ziehl's carbol fuchsin, etc.

The microscopic examination showed the following tissue changes:

Liver: The liver showed extensive interlobular inflammatory foci, formed by a cellular exudate. The infiltrating cells were found around the interlobular arteries, veins and small bile ducts. The small interlobular vessels showed a marked thickening of the adventitia, and most of the lumina were found to be surrounded by a number of concentric rings, composed of delicate connective tissue fibers. Occasionally there was found a small vessel entirely occluded by an obliterating proliferation of the lining endothelium. The cellular exudate of the inflammatory foci consisted of lymphoid cells and a high percentage of eosinophile polynuclears. In some places the latter cells formed one-fourth or one-fifth of the total number of infiltrating cells. Plasma cells were very sparingly represented. While this description conformed in general to most of the inflammatory foci in the liver, other areas presented a decidedly varied appearance. In these the more or less nearly oval or circular foci clearly showed a center consisting of epithelioid cells, with a vesicular nucleus and a large protoplasmic body. In some nodules among these cells multinuclear giant cells were found. The histology of these round or oval nodules was clearly that of the bacillar tubercle. The nodules also showed a fine, concentrically arranged fibrillar network of connective tissue fibers. Regressive changes were not seen. There was no caseation, nor did Weigert's stain show any fibrin.

The histology of the small tubercles in the liver, and it may here be added that of the similar structures found in the lungs, was identical with what has recently been again described by Baumgarten[14] as the structure of the experimentally produced tubercle, about two to three weeks old, which has not yet undergone any regressive changes, but in which the appearance of the first giant-cells indicates that the proliferation of the tubercle bacillus, as well as that of the inflammatory cells, has come to a standstill. Baumgarten also describes the occlusion of small vessels by endothelial proliferation as a part of the general cellular proliferation brought about by the presence of the tubercle bacillus. The nodules in the liver as well as those in the lungs contained an element which is foreign to the typical uncomplicated tubercle, namely, numerous eosinophilic polynuclears. It was impossible to prove the presence of tubercle bacilli, but the tubercles were found to be infected with plague bacilli. The latter were seen here and there in both types of the inflammatory foci, in those which showed simply the structure of an ordinary inflammatory area and in those possessing the features of a bacillar tubercle. The parenchyma cells of the liver exhibited a moderate degree of fatty degeneration. The capillaries were well filled with blood.

Lungs: Pieces of tissue from the right lower lobe showed a great engorgement of the interalveolar capillaries; in fact, all the blood vessels were highly congested. The alveoli presented a varying picture. Some were open, having contained air only; others were filled with extravasated blood, which did not show any degenerative changes. Desquamated alveolar epithelia, containing hematoidin granules, were seen but occasionally. The unchanged character of the blood, the small amount of pigment containing alveolar epithelia, and the absence of areas of coagulation necrosis showed that the blood extravasation must be of a comparatively recent date. Quite a few of the air spaces were filled with a homogeneous coagulated material, staining deeply with eosin. Other alveoli contained a lighter staining granular material. Neither the homogeneous nor the granular material stained with Weigert's fibrin stain, nor did the capillaries contain any hyaline (fibrin) thrombi.

Here and there was found a small solid nodule, hardly larger than the larger alveoli themselves. These nodules were composed of epithelioid and lymphoid cells and a considerable number of eosinophilic polynuclears. Multinuclear giant cells were likewise found in or near the center of some of the nodules. In fact, the latter were absolutely identical in their make-up with the tubercles which may be seen in sections of the hepatic tissue. Both in the pulmonary and in the hepatic tissue were found neighboring nodules, the peripheries of which were in contact with one another. However, the individual nodules had not become confluent and their outlines were well preserved. It was impossible to demonstrate tubercle bacilli in these nodules; but they showed a small number of plague bacilli found scattered between the cells. In properly stained sections it was seen that some of the alveoli contained enormous numbers of plague bacilli. Such air spaces appeared almost filled with them. Small groups of scattered bacilli could be found all over the sections.

Inguinal lymph nodes: The inguinal lymph nodes showed numerous enlarged, dilated vessels, replete with blood corpuscles. Around the larger vessels, particularly the hilus vessels, there was a marked, even, powerful development of the connective tissue. The general fibrillar connective tissue reticulum was likewise everywhere much increased. The peripheral follicles generally showed a well differentiated proliferation center. The peripheral lymph sinus and its branches were dilated. Eosinophilic polynuclears were found throughout the tissues, though nowhere in so large numbers as in the lungs and liver. Bacilli were seen sparingly in the sections. The necrotic changes described by Albrecht and Gohn as occurring in the vessels of the lymph nodes in bubonic plague were not seen.[15]

Kidneys: Sections of renal tissue showed practically normal glomeruli, moderate parenchymatous changes in the tubular epithelium and highly congested vessels.

The interesting features of the case above described are its ambulatory nature, its sudden termination by embolism of the pulmonary artery, and its complication with what undoubtedly appears to be a very recent tuberculosis. It is useless to speculate on the question why no tubercle bacilli were found.

14. Baumgarten: Ueber die pathologisch histologische Wirkung des Tuberkelbacillus Berlin klin. Wochen., 1901, No. 44, p. 1101.

15. Quoted from a short notice in Muschold's "Die Pest." The original report of Albrecht and Gohn on this subject is not at present accessible.

Clinical Reports.

A CASE OF DIPLEGIA BRACHIALIS TRAUMATICA DUE TO PRIMARY HEMATOMYELIA.

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Introduction.—Dr. Pearce Bailey, in his "Diseases Caused by Accident," says: "Traumatic hematomyelia is one of the most interesting of traumatic disorders of the nervous system. In severe general injuries when it occurs as a complicating factor, its individuality is usually lost in the general mutilation. But when it constitutes the chief lesion it very often has distinctive and recognizable symptoms. In its most characteristic

form it occurs without any bone injury, being demonstrable during life, and many autopsies have proved that such a lesion in the spinal cord is possible without the integrity of the spinal column being interfered with. This variety, which I have called primary hematomyelia (the word primary indicating that the bleeding results directly from the violence without the intervention of crushing or pressure by bone), is found almost exclusively in the lower cervical and upper thoracic regions, and results from sudden forced flexion or extension of the neck, e. g., diving in shallow water; the symptoms come on immediately."

History of the Case.—A lad, aged 16, was caught in a drill machine at the A., T. & S. F. shops at Gallup, N. M., Dec. 24, 1903, and sustained severe wrenching of the neck and shoulders, as was indicated by numerous abrasions about the face, neck and chest. He was rendered unconscious, but quickly revived and described his sensations during the receipt of the injury to the effect that his head was forced forward on his chest and was somewhat twisted. On recovering consciousness within a few minutes he found himself unable to raise either arm from the shoulder, though the function of forearms and wrists was unimpaired. He experienced no pain further than that due to the superficial violence about his head and neck, which disappeared within a few days, there being also absent muscular tenderness about the neck. The young man was kept quiet in bed and under close observation. Sensation for heat and cold was normal; in fact, no sensory disturbance seemed present except the existence of numbness over the occipital region, diminishing downward toward the insertion of the ligamentum nuchæ. About ten days later the temperature suddenly rose to 104, accompanied with a rapid and feeble pulse, nausea and general malaise. Bromids were administered in this attack, which passed without further symptoms.

Considerable atrophy of the suprascapular muscles and a general diminution in the size of the arms were apparent at the end of six weeks, though the patient had learned to use his upper extremities with much dexterity, finding a way to throw them up to his head and shoulders by the use of the pectoral muscles and the latissimus dorsi.

The general condition improved with increase of weight, and the patient was finally dismissed from the hospital and allowed to return to his home at a town a hundred miles distant, whence come reports of constant improvement in the tone and in the use of the members.

Comments.—The point of lesion in the cord in this case would seem to be easily defined by the clear limitation of the muscles involved; those supplied by the anterior thoracic, posterior thoracic, circumflex in part, suprascapular, and principally the musculo-cutaneous, that portion of the brachial plexus arising from the fifth, sixth and seventh cervical nerves (the outer and posterior cords), which undoubtedly represents within definite limits the portion of the cord which was the seat of hemorrhage, which would appear to have been confined to the gray matter. Examination of the case eleven months after the injury shows complete recovery with perfectly restored function.

A CASE OF HEMORRHAGIC TYPHOID.

J. R. DURHAM, M.D., F.T.M.C.

WARREN, PA.

History.—J. O., aged 28, single, occupation woodsman, was admitted to the hospital on the evening of Sept. 3, 1903, with a history of having been ill one week, and of coming from a camp where typhoid fever was present. Temperature, 104.6; pulse, 94; respiration, 34; urinary analysis negative.

Course of the Disease.—The next morning the temperature was 105; pulse, 100; respiration, 42; considerable bronchial cough, severe headache and delirium. The pulse becoming weaker, he was placed on strychnia, gr. 1/60 every four hours, while the nervous symptoms and pyrexia were treated by the icebag to the head and ice-water sponges every two hours.

September 5. Temperature ranged from 102 to 105; pulse from 90 to 100; respiration varied between 40 at 8 a. m., 22 at 2 p. m., and back to 40 at 6 p. m.; abdominal symptoms were now more pronounced, there being considerable tympanitis and diarrhea; for these turpentine stupes and turpentine inunctions were used, with salol and bismuth betanaphtholate internally and later turpentine emulsion; large quantities of gas were expelled. The next night showed no change in his condition except that there was circulatory depression during the sponges, for which he was given a half ounce of whisky before the treatment.

September 6. The temperature remained through the day at 105, pulse from 95 to 104 and weaker, respirations 28 to 36. Ice-water enemas were given every three hours, while strychnia was given hypodermically every four hours in dose of 1/40 grain; the rectal tube was also used with good results.

Between this date and September 10 the patient continued to be desperately ill; the heart showed some intermittence so nitroglycerin, gr. 1/200, was added to his strychnia; the other symptoms were the same.

September 11. Temperature from 102.2 to 104, pulse from 88 to 94, better quality; respirations from 22 to 32; cold packs were used at this point, being better borne by the patient. There was considerable cough and some congestion of the bases of the lungs.

September 13. Temperature falling very slightly, the pulse lower and of fair quality; respirations still from 28 to 36.

September 14. Temperature from 101.8 to 103.6, pulse from 92 to 94, respirations from 28 to 44. This was the eighteenth day of the disease. Hemorrhages from the gums and mucous membrane of the mouth now made their appearance, and also under the skin wherever the hypodermic needle was used.

September 15. There was a continuous hemorrhage from the rectum, the urine also being quite red; a slight oozing of the blood was next noticed from the skin of the nose; ergotol in 10 minim doses was given hypodermically every four hours and 15-grain doses of calcium chlorid by the mouth every five hours. Besides this, a mouth wash of adrenalin chlorid 1 to 1,000 was used and with good effect.

September 17. The temperature ranged from 100 to 101.6, respirations from 22 to 30, pulse from 98 to 106; after an enema at 2 p. m., he expelled a great deal of gas and dark blood, while the urine was almost black. Protein, gr. 15 every three hours, was added to the treatment at this point.

September 18. Temperature, 100 to 103.6; respirations from 22 to 28. The bleeding from the mouth was much better, but a severe hemorrhage from the bowels occurred at 5 a. m., there being three pints of fresh blood expelled; bladder hemorrhage same. Morphin, gr. ¼, was given at once, as well as ergot, m. x, and the administration subcutaneously of 700 c.c. of normal salt solution. After the use of the morphia the respiration dropped as low as from 14 to 18 a minute and no fresh hemorrhages appeared.

September 20. Urine began to clear up; pulse became as low as 78; temperature, 99.8; respirations from 15 to 18. About this time two superficial abscesses appeared on the nates, but with antiseptic dressings they soon healed.

Between September 21 and October 4 the patient made steady progress, his bedside record being discontinued on the latter date. He was discharged from the institution October 21, after having been under treatment for 55 days. His convalescence was marked by a bradycardia, the pulse running as low as 48 beats per minute. The diet throughout consisted of broths, peptonized preparations and malted milk.

Remarks.—The symptoms which required the closest scrutiny were the diarrhea and tympanitis, the heart's action and the hemorrhages; the character of the latter making it an unusual clinical feature.

This patient lost in all about six pints of blood, which illustrates the point to which attention has been called by other clinicians, that a surprising amount of blood may be lost and yet recovery follow.

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PROGRESS IN CHILD LABOR LAWS.

One hundred and twenty years ago Dr. Percival, of Manchester, England, was asked by the justices of the peace of that city, to inquire into the causes of a serious epidemic among the factory employes. After personal investigation of the conditions, Dr. Percival reported in favor of placing the mills under legislative control, especially as regarded hours of work, which, in his opinion, were so long as to be a contributory cause of disease through confinement and exhaustion. In consequence of his representations the magistrates passed a resolution that they would not allow parish apprentices to be bound to owners of mills in which children were obliged to work in the night or more than ten hours in the day. This resolution is said to be the earliest recorded attempt of any public body to limit the hours of children's labor. The earliest child labor legislation, therefore, owed its origin to the spirit of scientific inquiry into questions of public health, and it seems proper that this same spirit should still take the initiative whenever public health is menaced through lack of proper legislation.

The condition of the factory population of northern England during the early part of the last century was pitiable. We are told of children of six and seven years working fourteen or fifteen hours a day; of pauper children from London workhouses, sent in hordes to mill owners, who were allowed to work them without inspection or control. We are also told of the condition of these children in later life: "Feeble in frame, their intellect shrunk up and dry like a tree. Their children are feebler still." England reaped a bitter harvest from the unrestricted greed of the early years of her industrial development, but she has learned her lesson and a century of factory legislation has changed the world for the English working child.

Our own country is far in advance of England, so far as our public school system is concerned, but there are few of our states which can boast of child labor laws as good as hers. Child labor means two evils, physical underdevelopment and illiteracy. There are 66,000 illiterate children between the ages of ten and fourteen years in Alabama, 63,000 in Georgia, 55,000 in Louisiana. Even in our northern states the showing is bad. Pennsylvania has 6,300, Missouri 11,600. In all of these states the laws regarding child labor are utterly inadequate.

In places where child labor is allowed, the wages of adults are lowered and parents are sometimes compelled to send their children to work. We must reckon, also, with the greed and ignorance of the foreign immigrant, whose one thought in coming to this country is to make money and to whom education seems a needless luxury. Some employers are benevolent and some are not, and the stern laws of competition force the benevolent to adopt the methods of the non-benevolent, if these methods are unrestricted by state control.

In an interesting reference hand-book[1] on "Child Labor Legislation" in the United States, recently issued, the statistics as to illiteracy in the different states are given, and the laws concerning the age below which children may not work, concerning compulsory school attendance, the educational test for children seeking employment and the restriction of night work for children. The widest differences are found to exist between the different states. In some instances the differences can be explained by the absence of certain industries, but in others one is forced to believe that in some states a few powerful industries have been able to influence legislation in their own favor. Thus the glass industry in New Jersey has been able to obtain special privileges whereby children under sixteen may work all night in its factories, an exemption which the glass-workers of Illinois fought hard to obtain, but could not. The canneries of Maryland and New Jersey enjoy special privileges in the employment of children which are denied in other states. Children of fourteen years in the latter and children of any age in the former may work in canneries night or day for a number of hours, determined only by the will of the employer and their own physical endurance. The textile mills of Pennsylvania may work girls of thirteen all night, those of Massachusetts may not. It is well to note that these three states stand far down in the list of states placed in the order of the literacy of their children. The textile industry of the southern states is the most notorious offender in the matter of immature labor. Of twelve southern states only two make the age limit for employment in factories fourteen years, five make it twelve years, one eleven years, and the remaining have no restrictions, or only such as are easily evaded, "consent of guardian," "poverty necessitating employment." In Missouri, Kentucky, Tennessee and Georgia, children of any age may be employed at night, and in three other states the age limit for night work is only 12, 13 and 14 years.

Certain of the newer western states have surprisingly defective legislation in this respect. Thus in Washington a girl of 12 years "necessarily employed" may not only work ten hours at night, but may do so seven nights in the week, and a boy of the same age is not even restricted to ten hours. Nebraska, Idaho, Colorado, Nevada, Wyoming and New Mexico have no restrictions at all for night work, and only one, Colorado, makes up

1. The National Consumers' League, 105 E. 22d St., New York City.

for this in part by a really excellent compulsory education law. It is urged in excuse that in these new states the evil of child labor has not yet attained such proportions as to require legislative control, but surely it is easier to strangle the monster in his cradle than to wait until he is full-grown.

Delaware enjoys the distinction of being at the very bottom of the list, for she has no age limit for employment, no compulsory education and no restriction of night work.

In Massachusetts, Illinois and New York, in spite of the continual influx of foreign illiteracy, the number of illiterates is kept amazingly low through the working of excellent compulsory education laws. New York state has less than 300 more illiterate children than has New Mexico, Illinois has 300 fewer than the latter, yet New York City and Chicago are the two principal Meccas of our foreign immigrants. The usual arguments in favor of child labor can not appeal to a physician.

The plea that children are better off in the factory than in the street, "that they learn habits of industry," etc., is readily met by the retort that nothing in street life is so detrimental to health as is the confinement and strain of factory life, and that the monotony and long hours stunt a child's intelligence instead of developing it. Even less does the sentimental plea appeal to the physician. That children should be sacrificed for the support of adults, no matter how indigent, is a reversal of the law of nature. The higher the species the longer is the period of immaturity and to cut short that period and force a premature activity is to invite physical and mental degeneracy. Child labor is the truest form of race suicide.

The National Consumers' League has framed a standard child labor law which embodies the best features of the Massachusetts, the Illinois and the New York laws. Briefly stated, it would prohibit the employment for wages of any child under fourteen years during school hours or after 7 p. m., and also the employment of any child under sixteen years for more than eight hours a day or after 7 p. m. An educational test would be required for children under sixteen years. It should be a matter of personal interest to every public-spirited physician to work for the passage of such a law in the states which are as yet without adequate legislation.

THE MEANING OF THE QUALITATIVE SUGAR-REACTIONS IN URINE.

In a preceding issue we discussed briefly and in an elementary manner the use of various tests for albumin in the urine as they concern the general practitioner; a similar summary critic of the qualitative reactions for sugar will, it is believed, be welcomed by some of our readers.

Certain precautions should always be taken before examining the urine of a patient for sugar. The physician should, for example, know what drugs, if any, have recently been administered, since rhubarb, cascara sagrada, salicylic acid preparations, morphin, various coal-tar products and other medicaments may give rise to substances in the urine which lead to confusion in the application of the various sugar tests. Again, if albumin or sulphuretted hydrogen be present in the urine they must be removed before testing for sugar. Finally, fresh urine, rather than that kept from decomposition by preservatives, should be employed, for formalin and chloroform, sometimes added to urine to keep it, will yield some of the so-called sugar reactions; if any preservative has to be used, the addition of a little copper sulphate (1 per cent.) is least objectionable.

The reducing property of sugar is that most commonly utilized in the detection of the substance in the urine. Glucose, or grape sugar, the form most often present, reduces, by virtue of its aldehyd group, alkaline solutions of cupric salts to red cuprous oxid (Cu_2O); Fehling's or Haines' solutions are the best to use. The exact chemistry of the process is rather complicated, since the copper of cupric salts, in the presence of tartaric acid or glycerin, enters into the formation of complex ions, the composition of which need not be discussed here. In the case of both fluids the complex organic copper ion, which has a dark blue color, is changed by various reducing agents, of which grape-sugar is one, in such a manner that it deposits a red precipitate of cuprous oxid. Unfortunately urine may contain substances other than grape-sugar which reduce these copper solutions; thus milk-sugar (lactose) and less often fruit-sugar (fructose or levulose) may be present in urine and reduce the copper salt, or uric acid or kreatinin if present in excess will cause reduction, as will also glycuronic acid compounds and certain other reducing agents, especially after the ingestion of drugs like turpentine, chloral hydrate, salicylic acid, copaiba and cubebs.

The bismuth tests, like the copper tests, depend on the reducing property of sugar and if employed in the form of Nylander's reagent afford a convenient and sharp method for the detection of sugar by the practitioner. The reduction of the alkaline bismuth solutions can, however, be effected also by glycuronic acid, by excess of indican, and especially by reducing substances present in the urine after the ingestion of various drugs, particularly rhubarb, senna, and antipyrin. A positive reaction does not, therefore, any more than with Fehling's or Haines' solutions, indicate necessarily the presence of sugar; control tests which exclude other substances must accordingly be made.

The safest test for the presence of sugar in the urine, the one, which when applied as directed below, we unhesitatingly recommend to practicing physicians as the most reliable of all, is the fermentation test. To apply it, one needs three fermentation tubes and some good compressed yeast. A lump of yeast the size of a hazelnut (0.5 to 1 gram) is rubbed up in a small mortar with one or two cubic centimeters of water, and this suspension is mixed with about 25 c.c. of urine (acidified

with a few drops of a solution of tartaric acid). An Einhorn fermentation tube or some similar apparatus is carefully filled with the mixture and the whole set aside in a warm place for from 12 to 24 hours; if sugar is present it will be converted into alcohol and carbonic acid gas and the latter will accumulate in the upper part of the fermentation tube. To make sure that the yeast itself does not contain starch or sugar, a second fermentation tube is filled with water (acidified with tartaric acid) and yeast and, to prove further that the yeast is active, a third tube is filled with an acidified 1 per cent. solution of grape-sugar and yeast. No gas (or only a minimal amount) should appear in the second tube at the end of 12 hours, while the third tube should contain an abundance of CO_2. By means of this simple test all the members of the group of reducing substances other than sugar are excluded, for they do not ferment with yeast. Levulose and maltose do ferment with yeast, it is true, but they are only very rarely present in urine, while glucose is very often present. Glucose is, moreover, strongly dextrorotary to polarized light, while levulose is strongly levorotary; and, again, if levulose is present the urine should yield Seliwanoff's reaction for ketoses (test with resorcin and hydrochloric acid). If the fermentation test, carried out as above recommended, be positive, then the practitioner may be reasonably sure that he is dealing with glycosuria, and, if he wish to make assurance doubly sure, he may exclude the presence of levulose by the methods mentioned.

An excellent confirmatory test for the presence of sugar, delicate enough to detect quantities as small as 0.03 gram in 100 c.c., is the phenylhydrazin reaction of E. Fischer as applied to urine by v. Jaksch and Jolles. The reaction may be positive with glucose, lactose, levulose, maltose or pentoses; even unpaired glycuronic acid may yield a crystalline osazone. Solutions of the various osazones behave somewhat differently to polarized light (P. Mayer) and the purified crystals have different melting points; these differential methods are, however, altogether too complex to be used by the average busy practitioner; moreover, they are rendered superfluous for ordinary purposes, as we have shown above, by the simple fermentation test.

The quantitative estimation of sugar is another matter, which we may discuss later. We dismiss it at present with the simple statement that, for practical clinical purposes, we advise the use of any one of three methods: (a) titration with Haines' solution; (b) polarization with the half-shadow apparatus; and (c) fermentation in Lohnstein's saccharometer.

THE OCCURRENCE OF PEPTIC ULCERS IN THE JEJUNUM AFTER GASTROENTEROSTOMY.

In 1891 the *Wiener medicinische Wochenschrift* published an anniversary number, in which a number of prominent physicians contributed a series of aphorisms. Among these was one from Anton von Frisch, which read as follows: "Antisepsis is the triumph of modern surgery, but perhaps also the ruin of the old surgical skill, for to-day, under its protecting wing, children and fools operate unpunished." Like most aphorisms, this presents rather a one-sided view of the truth, but that it contains truth can not be denied. Perhaps it would be fairer to say that on account of the relative safety to life conferred by asepsis, operations are performed, often with the best motives, which would not have been performed if more thought had been given to the case. Within the last few years the surgery of the stomach has held a prominent place, and the beneficial results of stomach operations have been widely published in the literature; that very unpleasant results may follow in certain cases, and those the ones with non-malignant affections, has not been prominently discussed.

Tiegel[1] has drawn attention recently to the frequency with which gastroenterostomy for non-malignant diseases of the stomach is followed by peptic ulcers in the jejunum. The jejunal ulcers have mostly developed in male subjects past the age of 30, and have in all instances occurred in cases in which the original operation was performed for a non-malignant affection, generally a stenosed pylorus resulting from gastric ulcer. The particular form of operation which was performed seems to have no influence on the development of the ulcers. The ulcers developed at varying intervals after the primary operation, some appearing as early as ten days after, and some not until eight years after.

So far as clinical symptoms are concerned, two great groups of cases are to be recognized. In one group the patient presents absolutely no premonitory symptoms, the illness coming like a thunderclap out of a clear sky. There is very sudden onset with severe abdominal pain, vomiting, and the rapid development of the signs of acute peritonitis. Operation or autopsy in these cases shows an acute perforation of the ulcer into the peritoneal cavity. In the second group of cases the onset is gradual, and the symptoms are similar to those of round ulcer of the stomach. There is pain sometimes constant, sometimes intermittent, which may be increased by taking food or may be most marked an hour or two after taking food. The pain may be in the epigastric or umbilical region, or may occur either to the right or left of the median line. Usually as the case progresses, there develops an infiltration of the abdominal wall, or at any rate an area of localized resistance. In some cases there is an actual inflammatory tumor; in some there are signs of gastric stasis, and in a few there may be the passage of blood by the stomach or rectum. These differ from the preceding cases in that they almost never perforate into the general peritoneal cavity.

The condition of the gastric secretion before and after the original operation in these cases is of impor-

1. Mittellungen aus den Grenzgebieten der Med. und Chir., vol. xiii, Nos. 5 and 6, 1904. THE JOURNAL, page 1732.

tance; it has been determined in relatively few of the cases, and, as far as one can judge from these, is inconstant. In some a definite hyperacidity of the gastric juice is present, but in others this is not the case, either before the original operation or before the development of the jejunal ulceration. Pathologically, the jejunal ulcers are just like the gastric peptic ulcer. They are usually single, and are generally situated in the wall of the jejunum opposite or near to the gastrointestinal opening; rarely where an enteroenteric anastomosis has also been made they are situated near this.

The diagnosis of jejunal ulcer following gastroenterostomy is not always easy. The acute cases have been taken for appendicitis and other acute abdominal inflammations, but the absolute lack of premonitory symptoms in the jejunal ulcer is very suggestive. The chronic cases are very easily confused with recurring gastric ulcer, and operation may be necessary to decide the point. The presence of tenderness or infiltration lower down and further to the left than is usual with gastric ulcer would be in favor of the jejunal form.

The treatment of these cases, and particularly of the chronic form, is mainly medical and along the lines of the usual treatment of gastric ulcer. Surgical intervention is, of course, demanded in the cases with acute perforation, but the chronic cases do badly under surgical intervention. The results of Tiegel's investigation suggest to him that in certain forms of gastric disease too much surgery has been done, and strangely enough, it is in the non-malignant cases that intervention has been practiced too much. In view of this work, it would seem best to avoid surgical interference in benign gastric affections unless it is absolutely necessary, and in those cases where a gastroenterostomy must be done, a postoperative treatment in the form of alkalies and a strict diet should be adhered to for a long time.

A SUCCESSFUL COUNTY MEDICAL SOCIETY.

One of the most successful local organizations in the United States is the Chicago Medical Society, the medical society for Cook County, and its working methods and accomplishments may be cited as examples that should be followed in other large cities. Among its good features is the weekly *Bulletin* which it publishes. This contains the programs of the weekly meetings of the central body and of the monthly meetings of its branches and affiliated societies, as well as much other matter of interest. It is issued as second class matter, and so can be published at less expense per member than could a simple postal card. The last issue is a special number, most of which has been prepared by the organization committee to call attention to those who are not members to the work the society is doing and to the advantages of membership. Two years after the reorganization of the state society, the Chicago Medical Society also reorganized, so that its constitution and by-laws conform to that of the general plan. In doing so, however, the needs of those living in the suburbs were considered, and the county, which practically means the city, was divided into eleven districts. In each of these has been organized a local branch, composed of all the members of the society who reside in the district, on the plan long prevailing in Massachusetts.

Each of these local branches meets monthly, and some of them combine science and good fellowship at each meeting by having a smoker or lunch. An annual banquet to which the members' wives are invited is also held by all the branches. In fact, one of the main ideas of each district branch is to bring together physicians living in its territory, making it as much a social body as a scientific one. It is recognized that to bring together men who live in the same community, thus making them acquainted, will do away with most of the petty jealousies which are found in a community where physicians do not really know each other. These branches are supported by the central society, and are forbidden by the constitution to levy any tax on their members. The members are elected by the central body, and, of course, are members of the central body as well as of the branches. Membership carries with it membership in the Illinois State Medical Society, and each member receives the benefits of that membership, as well as a copy of the excellent journal that is published monthly by that organization. Beside these branches, there are the scientific sections—called "affiliated societies"—and including the surgical, laryngological, pathological, ophthalmological and otological, orthopedic, gynecological, and pediatric societies. Each of these is more or less independent of the main body, but its membership is limited to those who belong to the Chicago Medical Society. The members are supplied also with a medical directory of Cook County, and—to some the most important point of all—have a medical defense organization of their own, managed by a medical defense committee. For all this each member pays an annual due of $5, $1 of which goes to the medical defense and $1.50 for state society dues.

The society is also doing good work in carrying on a series of free public lectures. The membership has reached nearly 1,600, and is steadily growing, the bulletin before us indicating that there are fifty applicants awaiting action. Only seven state societies now have a larger membership. The central body meets weekly, and it is not unusual to have an attendance of 300 or 400.

It thus seems to us worth emphasizing that the Chicago Medical Society is an example for other large cities to follow. Philadelphia is doing something in the way of branch societies, but it has not taken up the work systematically as has Chicago. Pittsburg, if we may judge from a recent letter from the secretary of the Alleghany Medical Society, has also considered the advisability of adopting some such plan. What a magnificent thing it would be for New York, for instance, if the members there would come together and organize as have the physicians of Chicago.

THE ACTION OF RADIUM ON CANCER.

Whatever the clinical results from the use of radium rays in the treatment of cancer may be, there is no question that they are able to produce a greater or less amount of retrogressive change in living tissues, both cancerous and non-cancerous. As is the case with the Roentgen rays, however, the means by which these changes are brought about is quite unknown. Experimental work with Roentgen rays has failed to show conclusively in what manner the "*x*-ray burns" are produced. Vascular changes, although sometimes conspicuous, can not explain all the changes of this white gangrene, and hence the unsatisfactory conclusion generally reached has been that the loss of vitality of the cells is due to some mysterious alteration in their metabolic properties. Cell life being the outcome of cell chemistry, an explanation may be found by a study of chemical changes that occur within the cell, so far as such study is possible by the means at present available. In this line of investigation is the work of Schwarz,[1] who considers that the radium rays decompose the lecithin of the cells, and as lecithin is an important if not essential constituent of all cells, particularly those that are rapidly growing, he looks on this as an explanation of the death of cells exposed to the action of radium rays. Unfortunately, the destructive effect of radium on lecithin has failed of confirmation, and this theory is not accepted by other investigators.

More promising are the results obtained by Neuberg,[2] who studied the effects of radium rays on the self-digestion of cancer cells. We have frequently referred to the importance of this self-digestion of cells, autolysis, by the trypsin-like ferments which every cell contains. It would seem that in every cell there are continually occurring processes of synthesis and of autolysis, and as soon as the cell is separated from its sources of nourishment the autolytic processes alone occur, and hence the cell is rapidly broken down and absorbed, as in the case of infarcts, for example. Cancer cells, like all other actively growing cells, possess this autolytic property to a high degree; hence the rapid softening of necrotic areas in tumors. Neuberg found that if two specimens of tissue from the same cancer were allowed to undergo autolysis, one exposed to radium rays and the other not, the exposed specimen at the end of four days would show nearly twice as much autolysis as the other, and at the end of eight days four times as much. In other words, cancer cells exposed to radium rays undergo self-digestion at a much more rapid rate than do similar cells without the influence of these rays. French and Scandinavian experimenters have shown, on the other hand, that most enzymes, e. g., trypsin, pepsin, and coagulating ferments, are very susceptible to the action of radium rays, being soon rendered inactive. The autolytic ferment is, therefore, an exception, and in this Neuberg believes the explanation of the biological effects of radium to lie. If the radium kills the enzymes that have to do with cell life, such as oxidizing ferments, reducing ferments, and ferments that have to do with cell synthesis, but leaves unimpaired the autolytic ferment, the cell will be killed and its destruction and absorption will be exceptionally rapid, because the autolytic process will not be opposed by synthetic processes. This explanation agrees well with the facts observed in practical application of radium, and has the advantage of being capable of further investigation since it places the action definitely in the cell enzymes, about which we are just beginning to get a working knowledge.

From time to time reports have appeared indicating that *x*-rays have a considerable influence on growths of lymphoid tissue, particularly leukemia and Hodgkin's disease. According to the experimental results obtained by Heineke,[3] it may be found that radium rays are also very active in such conditions, for he found that radium rays seemed to have a particularly marked influence on lymphoid tissue. Extensive retrogressive changes occur after exposure, followed by absorption, and so susceptible are lymphoid tissues to these rays that extensive alterations may occur in subcutaneous lymph glands, when the skin overlying them is unaffected by the rays that pass through it before reaching the glands. As lymphoid tissue has considerable autolytic activity, much more than the skin, this susceptibility may be considered as in corroboration of Neuberg's theory.

1. Pflüger's Archiv, vol. c, 1903, p. 533.
2. Zeitschr. für Krebsforschung, 1904, vol. ii, p. 171.

DEMENTIA PRECOX.

While the term dementia precox was first used by Pick in 1891, to designate a group of cases of the juvenile insanities characterized by progressive mental deterioration, Kraepelin's name is chiefly associated with the modern clinical acceptance of the term. Dementia precox stands in some danger of losing its philologic significance through frequent reports of cases in adult life, and even in extreme old age. There are few physicians in or outside of asylum practice to-day who do not see frequent illustrations of the more or less classic types of Kraepelin's description. Indeed, about a fifth of all the insane admitted to asylum care are of dementia precox, hence the importance of knowing the nature and cause of this deteriorating mental disorder. Nor is science unaware of the pressing importance of the solution of this problem. Nearly every psychiatric journal contains researches into the etiopathology of dementia precox. Notwithstanding that the clinical foundation of dementia precox appears firmly established, there are a few who deny that Kraepelin's clinical description of this psychosis signifies any real advance in our knowledge of psychiatry. The great value of Kraepelin's work along this line, however, is shown by the rapid adoption of dementia precox as a clinical entity in asylum practice here and abroad. It stands

3. Münch. med. Woch., 1904, No. 31 THE JOURNAL, page 847.

the proof of clinical needs. Sachs[1] very properly raises the question whether all the insanities of the juvenile period are to be classed with dementia precox. He presents cases which he believes are non-dementing psychoses occurring in this period. In rare instances, simple melancholias may begin at this period, and, of course, in such dementia does not appreciably enter. It is true Kraepelin maintains that the great majority of the juvenile insane deteriorate, but he expressly states that a small per cent. do not; they may not require asylum care, but may remain at home and finally be able to take up their life work in their chosen narrow field.

To detect the presence or absence of slight grades of mental deterioration in any given case is often difficult under ideal conditions; thus in asylum records, which are based on the severer grades of dementia precox and in which a certain uniformity of deterioration ought to be recorded, the degree of deterioration varies somewhat with the personal equation of the different staff physicians who make the notes. One needs to live in more or less constant contact with the insane to properly appreciate many of the difficulties of the problem. Certainly the routine office consultation of private practice is often a very inaccurate method in deciding these delicate points. The statistics of asylums Sachs believes to be insufficient to determine the dementing or non-dementing character of these psychoses, as only the worst mental cases go there; consequently, the invariable mental deterioration noted in cases sent there is vitiated. Unfortunately the inclusion of outside data often must be misleading and inaccurate. If some mental deterioration is invariably present in dementia precox, then Sachs believes his cases are exceptional and form a new type in the adolescent insanities. The subdivision of dementia precox as made by Kraepelin is only tentative; many atypical cases are certain of occurrence the more intently the types are studied. Kraepelin was the first to recognize this himself. A desire for simplicity in classification of the juvenile insanities, however, will demand much proof of those who attempt to establish new types of the adolescent period.

One of the strongest arguments for the dementing character of this psychosis must be based on the fact that it almost invariably develops in a soil of family and personal degeneracy. We would expect that the deterioration would be accompanied by a degenerative lesion either in the cortical neuron or its association processes. Researches are slowly accumulating which seem to support this view. There are but few who still believe in an autointoxication pathology for dementia precox, the origin of which must have been largely fanciful.

There are reasons to believe that the early death of imperfectly developed association tracts in the cerebral cortex may explain much in the pathology of this condition. We would urge a reapplication of Gower's abiotrophy hypothesis for the early deterioration of certain brain tracts in dementia precox. It is at present the best explanation at hand for the early death of nerve systems in juvenile cord diseases, as shown in hereditary ataxy for example.

1. Proceedings Amer. Neurolog. Assn., September, 1904; Proceedings N. Y. Neurolog. Soc., October, 1904.

THE RIGHT TO GIVE AND TO TAKE DISEASE.

The latest development of anti-vaccination is the plea raised by Massachusetts anti-vaccinationists that the compulsory vaccination regulations conflict with the fourteenth amendment of the Constitution of the United States. To have smallpox is evidently in their opinion one of the privileges of citizens of the United States. We had supposed that compulsory vaccination laws were for the protection of the citizen, but these people wish the public to be denied such protection. A case of smallpox is a peril to everyone who comes in contact with it unless protected by vaccination or previous attack, and the fourteenth amendment might as well be pleaded against the non-enforcement of laws requiring vaccination. There is evidently here a good chance for lawyers to quibble, but the outcome of the suit ought not to be doubtful.

THE INSANE AS PUZZLE SOLVERS AND SHORT-STORY WRITERS.

Occasionally the Associated Press serves us up an excellent breakfast jest, while endeavoring to be serious. On November 29 our morning papers soberly informed us that a female inmate of a Minnesota insane asylum had won first prize in a magazine puzzle and "short-essay" contest! The humor of the occurrence seems to have passed unnoticed. The alienist will find in this incident some light on the psychologic status of the designers of magazine puzzles. The publicist will grasp at a new and promising method for agreeably occupying the time of the inmates of asylums and penitentiaries. Asylum superintendents will rejoice at the advent of a new amusement for their charges. Magazine publishers (those who promote circulation by guess) will immediately experience a forward jump in subscriptions. The physician may be perturbed over the probable fate of some of his, at present, sane patients. The possibilities of the situation are inexhaustible. It will be interesting to know the subsequent effect of the experience on the mental state of the successful solver.

INTERNATIONAL UNIFICATION OF MEDICAL STATISTICS.

There is published this year from the office of the Surgeon-General of the Army, for the first time in separate form, the complete series of the tables of "International Military Medical Statistics." These are the tables agreed on at the meeting of the International Commission for the Unification of the Medical Statistics of Armies, held at Budapest in 1894, and modified by the last meeting held at Madrid in 1903. Of the twelve countries which were a party to the agreement only one other than the United States has published all of the ten tables, and in no other "Supplement" are they so complete and detailed. These tables show the

total movement of sickness and mortality in absolute and proportional numbers by departments, by the larger garrisons, by months, and by arms of service; the same data for thirty-five of the most important diseases or disease groups; also the influence of rank, length of service and age on deaths and discharges for disability. Thus for the first time the most important medical statistics of the United States Army become available for comparison with those of foreign services, and much interesting and valuable information will no doubt be obtained.

THE PHYSIOLOGIC EFFECTS OF DIGITALIS.

The view has been put forward that under normal conditions digitalis strengthens the left heart by causing maximum dilatation of the left coronary artery and at the same time enfeebles the activity of the right heart by causing contraction of the right coronary artery. Accordingly, it is suggested that a deviation from such conditions may be considered as indicative of the existence of some disorder causing increased activity on the part of the right ventricle as a result of diminished contractility of the right coronary artery. This, it is pointed out, may be brought about by the administration of digitalis in the presence of disease of the right coronary artery, of which therefore the phenomena described may be considered as diagnostic. A case illustrative of this relation was recently reported by Prof. T. von Openchowsky[1] to the Society for Internal Medicine at Berlin. The patient was a man with a previous history of articular rheumatism and disease of the heart, who presented symptoms of failing compensation, in association with mitral stenosis and insufficiency and aortic insufficiency, together with diffuse arterial sclerosis. One grain each of calomel and powdered digitalis was prescribed, but on account of the development of alarming general symptoms the digitalis was withdrawn. Some improvement followed, but the symptoms became once more aggravated when digitalis was subsequently again administered. After each administration of digitalis increased activity of the right heart was observed, as indicated in cardiograms and tracings of the venous pulse, while at the same time diminution in the activity of the left ventricle was noted. Death resulted and on postmortem examination the diameter of the right coronary artery was found to be larger than that of the left, namely, 14 mm. as compared with 8 mm. The anterior branch of the right coronary artery was the seat of sclerosis in slight degree and the trunk of the vessel in lesser degree. The explanation offered for the phenomena observed is that as a result of the abnormal dilatation of the right coronary artery and its failure to contract under the influence of digitalis the work of the right ventricle was needlessly increased, while the left ventricle was unable to propel the larger amount of blood sent to it. The case illustrates among other things the pharmacologic and dynamic dissociation in the activity of the two ventricles and also the danger that may attend the indiscriminate administration of digitalis, especially in the presence of disease of the right coronary artery, and particularly arteriosclerosis.

1. Berliner klin. Woch. No. 40. THE JOURNAL, page 1424.

Medical News.

ARKANSAS.

Smallpox in Pulaski County.—On November 29 and 30, 13 new cases of smallpox were reported to the county health officer. All the patients were negroes and live near Argenta. In all 24 cases have been discovered.

Accredited List for Hot Springs.—Nearly 150 physicians have applied to the federal medical board to have their names placed on the accredited list, which is intended to do away with the "drumming" nuisance at Hot Springs.

New Railway Hospital.—The new hospital for the Cotton Belt System at Texarkana is now in operation. The surgeons, nurses, servants and 35 patients arrived by a special hospital train, November 22, and were at once installed in their new quarters.

ILLINOIS.

Diphtheria is said to be epidemic in Pike County, where five cases and one death have been reported.

New Hospital Opened.—The new hospital for contagious diseases connected with Cook County Hospital, which has been erected at a cost of $122,000 and will accommodate 175 patients, was inspected by the advisory committee of the county board, November 30, and is ready to receive patients. The committee also inspected the new hospital for children, which will be completed early in next year.

Personal.—Dr. Joseph E. Lowery, Homer, was run over by a train in Peoria, November 22, and his left foot was so crushed that amputation may be necessary.——Dr. Henry G. W. Reinhardt, Chicago, has been appointed assistant coroner's physician of Cook County; Dr. Haim I. Davis, Chicago, county physician, and Dr. Vaclav H. Podstata has been reappointed superintendent of the county institutions at Dunning.

Chicago.

Homeopathic Colleges Consolidate.—It is announced that Hahnemann and the Chicago Homeopathic colleges have consolidated under the name of the former, and that this consolidation is preliminary to a merger with the University of Illinois.

New Michael Reese Hospital.—The competition of architects for plans for the new Michael Reese Hospital has resulted in the acceptance of the design of Richard E. Schmidt. The new building will be a six-story fireproof structure and will cost about $400,000.

Personal.—Dr. Henry Gradle has resumed practice after recovery from a severe illness.——Dr. Henry William Howard has been appointed secretary to the surgeon general, with rank of first lieutenant and assistant surgeon.——Dr. Alfred De Roulet suffered the loss of $100 worth of jewelry as the result of a burglar's visit, November 28.

Deaths of the Week.—The total deaths for the week ended December 3 were 450, 25 more than for the preceding week and 28 less than for the corresponding week of last year. The respective annual death rates per 1,000 were 12.44, 11.49 and 13.30. Pneumonia caused 64 deaths; consumption, 54; heart diseases, 49; violence, 41; Bright's disease, 35, and cancer, 30.

Pneumonia Less Virulent and Less Prevalent.—Pneumonia is much less prevalent and less fatal this year than usual. During the first eleven months of 1903 there were 4,133 deaths from the disease. During the similar period this year only 3,690 pneumonia deaths occurred. In November, 1903, there were 333 deaths and last month only 260 from pneumonia. The present Chicago proportion of pneumonia deaths to deaths from all causes is 13.6 per cent.; from consumption it is 11.3 per cent.

IOWA.

District Society to Meet.—The Central District Medical Association of Iowa will meet at Ames, December 20.

Did Not Report.—Dr. George G. Bickley, Waterloo, was fined $10 for failure to report contagious diseases to the health department.

A Warning.—Dr. R. J. Ludlow, Mechanicsville, asks us to warn physicians of Iowa and the west regarding a traveling man who is selling surgical instruments and appliances, claiming to represent a Chicago firm, and carrying various side lines. He succeeded in getting $8 from Dr. Ludlow by offering to send him a special attachment to some instrument, which was con-

sidered a very excellent offer. It is the old story, the traveling man made a good appearance, what he said was very plausible and the doctor was "worked."

Upholds State Board.—The Supreme Court, on November 17, greatly strengthened the State Board of Medical Examiners by deciding two important cases in its favor. In Wright County, J. W. Edmunds had been unsuccessfully prosecuted because he as an itinerant oculist had professed to heal everything. The court held that he should have paid a license fee as an itinerant doctor. In Boone County a magnetic healer, G. H. Heath, had escaped because no proof could be given that he had actually tried to heal anybody and he claimed also that as he administered no drugs he was not under the law. The court held to the contrary and that he was amenable to the law.

LOUISIANA.

Student Dies.—Mr. P. Lestang Sarpy, a member of the class of 1906 at Tulane University Medical Department, died November 22 from tuberculosis at his home in New Orleans, aged 22.

Aged Physician Beaten and Robbed.—Dr. Waldemar Bille, an aged practitioner of New Orleans, was assaulted in his office by an unknown miscreant, November 14, who, after beating Dr. Bille into unconsciousness, robbed him of $10 in cash and a number of checks, and escaped.

Sues Picayune.—Dr. J. Denegre Martin, New Orleans, has sued the Nicholson Publishing Company of that city, claiming damages of $10,000 alleged to be due for injuries sustained by the publication in the *Picayune* of the report of an operation performed by Dr. Martin, said publication being unauthorized and not desired by him.

Indictment Quashed.—The indictments against Dr. George A. B. Hays, superintendent of the Insane Asylum of the State of Louisiana, Jackson, for alleged violation of the law relative to postal rights of inmates of the institution, was ordered quashed, on account of the unconstitutionality of the act under which the indictments were returned.

MARYLAND.

Baltimore Deaths.—The deaths for the week ended December 3 numbered 167, a general annual rate per 1,000 of 15.12; colored, 29.14, and white, 12.19.

Will Build Isolation Hospital.—The Baltimore Municipal Hospital Commission has decided to locate the infectious diseases hospital on 20 acres of land in the eastern suburbs, recently purchased by the city.

Personal.—Dr. Jane E. Robbins of New York, head resident of Normal College Alumnæ House, is to be head resident at the Locust Point Social Settlement.——Dr. James S. Woodward, Sparrow's Point, has gone on a trip to Pensacola, Fla.——Dr. Samuel G. Fisher, Chestertown, has had a stroke of paralysis.

New Society.—A society to be known as "The Library and Historical Society," and designed to promote literary and historical research, will be founded December 20 at the University of Maryland, Baltimore. At the opening meeting papers will be read by Dr. William Osler, Prof. Henry E. Shepherd and Dr. Eugene F. Cordell.

One Nurse's Work.—Last March Mrs. Osler started a fund to support a visiting nurse for tuberculous cases under the supervision of the Visiting Nurses' Association of Baltimore. She has cared for 132 cases, has paid 778 visits, in all instances with assistance and instructive advice, and has distributed 364 tickets for milk and eggs. Care-takers were provided in urgent cases and many were referred to dispensaries and hospitals.

Cocain Habit Alarming.—The cocain habit has grown to an alarming extent, chiefly among the negroes and the inmates of houses of ill repute. At the last session of the legislature a law was passed forbidding its sale except on a physician's prescription, on penalty of a fine, doubled for each conviction and accompanied by six months' imprisonment on the third offense. A number of druggists have been arrested for violating this law.

MASSACHUSETTS.

Physician Gains Verdict.—In the damage suit of Mrs. Horace Chouinard against Dr. Pierre Brunelle, Lowell, in which she claimed malpractice to have caused the death of her husband, the jury, after short deliberation, found for the defendant.

Changes in Medical Examiners.—The governor has appointed Dr. Clifford S. Chapin, Great Barrington, associate medical examiner in the fourth Berkshire district, vice Dr. John B. Beebe, Great Barrington, promoted to be medical examiner.

Osteopath Not a Doctor.—H. Wilmot Johnson, an osteopath of Worcester, was arraigned before Judge Utley, November 21, on the charge of violating the registry of medicine laws, and was fined $100. He appealed. His contention was that he had the right to call himself "Dr." provided he did not prescribe medicine.

School Inspection.—There was appropriated this year by Boston for the medical inspection of its schools $47,000; 50 physicians are employed and they visit daily schools where there are 2,000 pupils. Their purpose is to advise the teacher what to do when a child is ill. If an infectious disease is detected, they have the authority to remove patients to the hospital or to institute strict quarantine in the home. Whether first seen by the inspector or not, quarantine is not removed from any child in his district without his written approval.

New Anti-Spitting Ordinance.—The new anti-spitting ordinance adopted by the Springfield Board of Health, November 18, is more comprehensive than the previous ordinances. It provides:

> Spitting is prohibited either on the sidewalk, crosswalk or footway of any public street, way, park or square, or on the floor of any hall or office in any hotel, apartment house, tenement or lodging house which is used in common by the guests or tenants thereof, or on the floor, platform, steps or stairs of any public building, hall, church, theater, railway station, store or factory, street car or other public conveyance.

September Health.—The Boston Board of Health reports for September shows 888 deaths, or an annual rate of 17.34 per 1,000. Chief among death causes were: Typhoid fever, 17; diphtheria, 14; tuberculosis, 103; cancer, 51; meningitis, 20; apoplexy, 32; heart disease, 65; pneumonia, 60; diarrhea, 111; intestinal obstruction, 12; acute nephritis, 38; chronic Bright's disease, 17, and congenital debility, 84. Unusual causes noted were: Cholera nostras, 2; whooping cough, 6; saturnism, 1; tetanus, 1; epilepsy, 1; thyroid disease, 1; appendicitis, 4, and puerperal septicemia, 2.

MISSOURI.

Diphtheria Closes Schools.—On account of the prevalence of diphtheria at Ludlow, schools and churches have been closed and public meetings prohibited.

Hospital Saturday.—The collections made December 3 in St. Louis to the Hospital Saturday and Sunday Association amounted to $15,546.46, or $4,141.54 more than in 1903.

Personal.—Dr. George B. Thompson, Kansas City, the new coroner of Jackson County, entered on his duties December 1. ——Dr. Walter M. Cross began his work as city chemist of Kansas City November 15.

Bequests to Hospitals.—By the will of Mrs. Agnes Kennett, St. Louis, $5,000 is bequeathed to St. Luke's Hospital and $2,500 to the Mullanphy Hospital Association in memory of her son, the late Dr. William C. Kennett.

To Organize a Medicolegal Society.—About fifty physicians and lawyers of Kansas City took the initial steps, November 15, toward organizing a medicolegal society to study medical jurisprudence. Dr. John Punton presided. A committee was appointed with instructions to form definite plans.

Imprisoned and Fined.—Dr. Caleb E. Mathis, Kansas City, who pleaded guilty November 18 to the charge of sending through the mails matter prohibited by law, was fined $500 and sentenced to imprisonment for one year. This sentence was afterward modified to six months' imprisonment and a fine of $750, and he commenced his term at Clinton prison November 29.

NEW YORK.

Crusade Against Tuberculosis.—The Charity Organization Society of Buffalo, through its committee on tenements and tuberculosis, has undertaken a crusade against tuberculosis. An effort is being made to tell the poor how they can resist this disease, and cards and leaflets of instruction have been issued to be distributed widely through physicians for the education of those suffering from this disease and their friends.

Swindler in the Toils.—F. W. Kingland, who is wanted by the Rochester police, was arrested at Niagara Falls on a charge of swindling a number of physicians in that city. He represented himself as an agent of the United States Health and Accident Company of Saginaw, Mich., and victimized physicians by offering them positions as medical examiner in the place they were located, provided they took out policies with the company. In most cases he would demand a deposit on

the policy. He was arrested and confessed, saying his downfall was caused by drink. He was sentenced to four months in the Niagara County jail. He is known to have operated in Waterloo, Albion and Rochester.

New York City.

Verdict in Favor of Doctor's Widow.—The jury has awarded the widow $40,000 in her suit against Richmond Light and Power Company on account of the death of Dr. Francis Morhard, who was killed in his home by a heavy electric current which entered the house because of the failure of the transformer to perform its work.

Rockefeller Laboratory Begun.—The corner-stone of the first building of the Rockefeller Institute was laid December 3 by Dr. Simon Flexner, chairman of the governing board of the institution. This building will have a frontage of 100 feet and will be five stories high. The estimated cost is $325,000. A small hospital will be built near it within the next two years.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended November 26, 376 cases of diphtheria, with 40 deaths; 324 cases of tuberculosis, with 166 deaths; 184 cases of scarlet fever, with 9 deaths; 136 cases of varicella; 98 cases of measles, with 9 deaths; 89 cases of typhoid fever, with 12 deaths; 3 cases of smallpox, and 14 deaths from cerebrospinal meningitis.

To Inspect Dairies.—The health deparment in continuing its crusade for pure milk has appointed several special inspectors, who have started on a round of inspection to include all the dairies that supply New York City with milk. The health department is gratified with the improvement in the milk supply and the assistant corporation counsel has expressed the determination to send future offenders to jail whenever possible.

Hospitals Still Need Money.—The annual report of the Society of the Lying-in Hospital shows that the scope and extent of its work have greatly increased during the past year. The excess of expenditures over receipts for the year ended September 30 was $87,357.——The annual report of the Presbyterian Hospital shows that it has wards vacant because of lack of public support. The deficit for this institution for the past year was $72,936.——The Society of St. Vincent de Paul is in need of $12,000 in order to complete its fresh-air home for convalescent women in the Ramapo Hills. This institution will be opened to all regardless of creed.——At the annual meeting of the directors of the New York Skin and Cancer Hospital it was reported that about 5,000 patients had been treated in the different departments during the past year and that its resources had been greatly taxed.

OHIO.

Personal.—Dr. R. C. Longfellow has been made associate editor of the *Toledo Medical and Surgical Reporter.*

Ricketts Recovered.—Dr. Edwin Ricketts, Cincinnati, who was successfully operated on a short time ago at the Good Samaritan Annex by Dr. Charles A. L. Reed for umbilical hernia, has again resumed his professional work.

Regret Buechner's Death.—The medical and surgical staff of the Youngstown Hospital, at a meeting held November 10, adopted resolutions setting forth the work done for that institution by the late Dr. William H. Buechner and expressing their sorrow at his death.

Academy of Medicine Meets.—Dr. G. W. Crile, Cleveland, was the guest of the Academy of Medicine of Toledo and Lucas County November 25, and presented a paper on "The Prevention of Shock and Hemorrhage in Surgery." Dr. Crile was elected an honorary member of the academy. After the meeting a five-course supper was served, at which the academy and visiting practitioners met to honor their guest.

District Society to Meet.—There will be a meeting of the physicians of the Sixth Councilor district at Canton, December 19. The sixth district is composed of the counties of Mahoning, Portage, Summit, Stark, Wayne, Holmes, Ashland and Richland. A large representation of the physicians of each of these counties is expected at the meeting. The committee on arrangements and program is composed of Drs. Jacob F. Marchand, Odo E. Portmann, James Fraunfelter, Austin C. Brant, all of Canton, and Dr. T. Clark Miller, Massillon, the councilor for the sixth district. Dr. J. N. McCormack, the organizer of the American Medical Association, will attend the meeting in the interest of more perfect organization of the physicians of the state.

PENNSYLVANIA.

Personal.—Drs. John and James H. Montgomery, Chambersburg, are spending the winter at Buena Vista, Fla.——Dr. Shoemaker of Oklahoma has been appointed physician at the Indian Training School, Carlisle.

Nurses' Home.—The new Nurses' Home of the Good Samaritan Hospital, Lebanon, was dedicated December 1. The home was the gift of Mr. and Mrs. Horace Brock and was erected and furnished at a cost of $7,500.

Smallpox at League Island.—One case of smallpox was discovered among the marines on the United States ship *Prairie*, which recently arrived at the navy yard. The presence of contagious disease on the ship was reported in the lay press as diphtheria.

Philadelphia.

Bequests.—By the will of Charles Scott, the Methodist Hospital receives $5,000 for a free bed, and the Methodist Home for the Aged $1,000.

Carlsbad Physicians in Philadelphia.—Drs. Isadore Muller, Gustave Toepfer and Tyrnauer of Carlsbad, visited Philadelphia and its hospitals, December 2. They were the guests of Dr. Lewis W. Steinbach.

More Food Indictments.—The grand jury has indicted 47 persons on charges of violating the pure food law. All but one of the accused were dealers in fruit syrups or extracts, or proprietors of cheap soda water fountains.

Personal.—Dr. C. Edwin Verdier and Dr. Walter E. Fine have resigned from the resident staff of St. Luke's Hospital.——Dr. Charles Crosby has been appointed pathologist to the State Hospital for Insane, to succeed Dr. Edith Barker, deceased.

Dinner to Dr. Chapin.—A dinner was given in honor of Dr. John B. Chapin, superintendent and chief physician of the Pennsylvania Hospital for the Insane, in this city, December 1. The dinner was given in commemoration of the completion of Dr. Chapin's fiftieth year in serving the insane. He was presented by the members of the staff and the board of trustees with an oil portrait of himself. He has been superintendent of the hospital for more than 21 years.

Health Report.—Diphtheria is still prevalent throughout the city, 125 cases being reported for the week, an increase of one over the previous week. In all there were 255 cases of contagious disease reported, with 18 deaths, as compared with 296 cases and 20 deaths for the preceding week. Deaths from all causes numbered 426. This is an increase over last week, and a decrease of 25 from those of the corresponding period of last year. Of the deaths 51 resulted from pulmonary tuberculosis, 13 from cancer, 18 from apoplexy, 39 from cardiac disease, 33 from pneumonia, 36 from Bright's disease, and 8 from typhoid fever.

White Haven Exhibit.—A free exhibition of the work and results of the White Haven Sanitarium for Poor Consumptives was recently held in Philadelphia. The methods of outdoor treatment were demonstrated and the general plan of treatment employed in the institution was shown. Free lectures were delivered by members of the staff of the Henry Phipps Institute and men interested in the affairs of the sanitarium each night during the week. The lectures delivered were as follows: Monday, Dr. H. R. M Landis, "History of Sanitarium Treatment in America"; Tuesday, Dr. Joseph Walsh, "Fresh Air"; Wednesday, Dr. W. H. Stanton, "Rest and Exercise"; Thursday, Dr. O. J. McCarthy, "Discipline and Personal Control of Patient"; Friday, Dr. H. M. Neal, "Nourishment"; Saturday, "Methods of Prevention."

GENERAL.

Northern Tri-State Medical Association.—This body of physicians of northwestern Ohio, southern Michigan and Indiana will meet in Toledo, Ohio, Jan. 10, 1905. Dr. G. W. Spohn, Elkhart, Ind., is president.

Increased Consumption of Hair Dyes.—The prejudice against elderly men in business is said to have resulted in a large number of men with gray hair resorting to hair dyes to make them look younger. The increased demand for hair dyes is almost simultaneous in this country, in England and on the continent. Inquiry at Liverpool showed that the recent enactment of more stringent regulations in regard to age in connection with industrial insurance was followed by a great demand for hair dyes.

Mosquitoes Increasing Near Laredo.—Since the withdrawal of the United States Public Health and Marine-Hospital sanitary forces on the Texan border, to which reference was made in THE JOURNAL, Oct. 29, 1904, page 1318, an increase has been noticed in the number of mosquitoes. The adult mosquito of the stegomyia variety is found everywhere and, while not in large numbers, shows that many breeding places must still exist.

Health Report of the Philippine Islands.—The report of the Board of Health for the Philippine Islands for July, 1904, shows that in the city of Manila there were, during the month, 673 births reported and 866 deaths of residents of the city and 56 deaths of transients, making a total of 922 deaths for July, as compared with 847 in June. Forty-eight per cent. of all deaths in the city of Manila, including transients but excluding stillbirths, occurred among children under one year of age. There were 11 cases of plague, with 10 deaths. Three cases of smallpox occurred in Manila; two of the patients were natives, the other was a European. One of the Filipinos died and the other two patients recovered.

Pan-American Congress and Public-Health Meeting.—The special sleeper, referred to December 3, page 1710, in the announcement of the Havana meeting, January 9-13, of the American Public Health Association, will leave Washington, January 4, instead of 5 as stated. The final announcement has been issued by the secretary, Dr. C. O. Probst, Columbus, Ohio, and may be had by those interested. The excursion rate out of Virginia, District of Columbia and the Carolinas to Havana and return, as published in THE JOURNAL, December 3, page 1710, has been reduced from $52 to $48 for the round trip. Other conditions remain the same. Rates to Panama: In the Southeastern Passenger territory a rate of one fare plus $1 will be granted to New Orleans, plus the ship rate, $50, for the round trip to Panama. Date of sale of tickets, December 26 and 27. Connecting with United Fruit ship sailing December 28, 10 a. m., with final limit of thirty days from date of sale.

Bill to Increase the Medical Department of the Army.—The Secretary of War in his annual report, just issued, speaks in terms of approval and advocacy of this bill. He says:

> It is evident that a staff department which has a personnel insufficient to perform the duties required of it in time of peace can not be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the medical department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the department.
>
> A bill to increase the efficiency of the medical department was sent to Congress at its last session with my approval, it having also received the favorable indorsement of my predecessor, Mr. Root. It provides for an increase in the medical department from 320 to 450, so as to do away with most of these contract surgeons. It also provides, approximately, the same proportion in each grade as is now given to the medical department of the Navy, and which the medical department of the Army enjoyed prior to the reorganization of Feb. 2, 1901. While this bill will only slightly increase the cost of the medical department, it will very greatly increase its efficiency.

FOREIGN.

First International Congress for Education and Protection of the Child in the Family.—The organizers of this congress announce that it will be held at Liège in September, 1905, and that the committees of propaganda in each country are composed of philanthropists, physicians, educators and philosophers of all kinds, as the subjects to be treated interest every one. Circulars will be sent on demand by addressing the Bureau du Congrès, rue Rubens 44, Brussels, Belgium.

Prizes for Pharmacy Students.—A scholarship of $250 and four consolation prizes of $25 each are offered by the firm of Fairchild Bros. & Foster, New York, for annual award to students of pharmacy in the United Kingdom. Examinations will be held in July and the winner of the scholarship may select any well-known school or college of pharmacy in Great Britain at which to study. Further particulars may be had of Mr. A. E. Holden, Bath House, 57, Holborn Viaduct, London, E. C.

A Medical Sketch Book.—A group of 13 well-known artists in Paris has founded a so-called medical journal to contain nothing but sketches, no reading matter except the titles underneath and the advertisements. A portrait sketch of Professor Hayem fills the first page of the second number of the new periodical, which bears the name of *Medica*. It is announced as an illustrated and humorous medical journal destined to fill a long-felt want and rest eyes weary of so much reading matter.

Medical Care on the Easy Payment Plan.—The *Gazette Méd. Belge* reproduces an advertisement now appearing in certain European journals. It announces the incorporation of a society which assumes the charges of medical attendance, medicines, operations, deformity apparatus, etc., the expenses to be repaid by the patient on the easy payment plan. "The patient can thus obtain the care and aid hitherto available only for the rich, and can complete the course of treatment now too often interrupted from reasons of economy. The charges are the same as when cash is paid, there being no expense or interest."

The Langenbeck Army Surgery Fund.—The family of the Berlin surgeon, von Langenbeck, founded in 1897 an endowment of about $12,500, the income of which was to be devoted to sending some medical man to the seat of any war in progress in which the German Empire is not participating. The stipend was awarded this year for the first time, Dr. Schäfer of Berlin being given funds for a trip to Manchuria, and he has just left for the seat of war. The trustees of the fund are the surgeon general of the German army, the president of the German Surgical Association, and the successor of von Langenbeck in the chair of surgery at Berlin. The income can be devoted to any phase of military surgery in case no war is in progress.

Prophylaxis of Cancer.—The efforts of Winter to teach the public the danger of delay when cancer is suspected have been chronicled recently in these columns. The great increase in the proportion of operable cases testifies to the great benefit realized from this crusade. The obstetric and gynecologic societies of Leipsic and Dresden are sending duplicates of Winter's circulars to all the physicians in Saxony. The *Berliner klin. Wochenschrift* remarks, however, that the chief obstacle to the proper prophylaxis of inoperable cancer is the activity of the irregular practitioners and "herb women," who promise a cure by internal or local measures until the oportunity for an operation is lost. Unless such practices are regulated by law the efforts of medical men toward prophylaxis of inoperable cancer will be more or less futile in certain regions.

Electro-Vigor Before the Courts of Germany.—The dealer handling the apparatus called electro-vigor was sued recently at Hamburg and Breslau for advertising extravagant statements in regard to its therapeutic efficiency. The medical authorities asserted that it was a very defective apparatus and contained nothing to justify the high price charged for it, nor the assertions as to its curative powers in certain diseases. The majority of the cases reported as cures were fraudulent. The Hamburg court imposed a fine of $37.50, and the Breslau court a fine of $7.50. The defendants in the suit at Hamburg were the dealer, a merchant and the advertising department of seven journals. The suit against all but the first was dismissed. At Breslau he was the sole defendant. The details of all these suits brought against irregular practitioners and methods are given weekly in the *Allg. med. Ct.-Ztg.* of Berlin, from which the above is quoted.

Organization of the Profession in Germany.—The enormous growth of the *Leipziger Verband*, the German society founded a few years ago to protect the economic interests of physicians in Germany, especially in the matter of contract practice, has necessitated its reorganization on a somewhat different basis. This was accomplished at the representative meeting, held at Leipsic, November 6. It was learned that with a few exceptions the matter of contract practice had been satisfactorily adjusted, the sickness insurance societies—the Krankenkassen—no longer trying to grind down their medical officers to the extent that had prevailed previously. In many instances they had forestalled the demands, learning from the experiences in other places that the demands of a solidly organized profession could not be treated lightly. Those interested in this organization will find the details in THE JOURNAL of May 28, 1904, page 1435.

French Congress of Surgery in 1905.—The congress will convene at Paris the first Monday in October. The questions appointed for discussion are "Surgery of the Pancreas," "Restorative Surgery of the Face," and "Conservative Surgery in Trauma of the Limbs." It was decreed that suggestions for a subject to be inscribed on the order of the day at these congresses must be signed by at least twenty members to receive consideration. Before the recent congress adjourned it passed a resolution in regard to the Doyen cancer serum to the effect that the Pasteur Institute should be asked to repeat and control Doyen's researches, and that the Society of Surgery should admit Doyen—at his request—to present cancer sub-

jects before treatment and at every third month thereafter to note the progress of treatment. The appointment of a permanent committee had been suggested, but was outside the powers of the congress. The matter was thus left to the Pasteur Institute and the Société de Chirurgie to confer with Doyen and agree on the mode of investigation. The conference has been held and the Doyen serum is now being studied by eminent authorities.

Multiple Arsenic Poisonings by a Hysteric.—A woman at Bordeaux, belonging to the upper classes, has been convicted of theft, arson and of the poisoning of several members of her family. In the expert testimony, Anglade stated that she presented all the symptoms of the hysteric neurosis. She should be placed under restraint, he said, but not in an insane asylum. She belongs in the institution which all the congresses on mental disease have been clamoring for, a place where the dangerous incomplete, imperfect and semiresponsibles should be kept under restraint. Pitres of Bordeaux compared the serenity of the prisoner, her lack of fear and of remorse, to the anesthesia of her integument and organs. He considered her responsible for her acts. They showed a logical sequence and love of crime. She voluntarily plans deeds, but she would never carry them into execution if she were not a victim of hysteria.

Isolation of the Tuberculous.—The Paris Société des Hôpitaux was requested by the authorities to suggest the best means for prompt, practicable isolation of the tuberculous in the hospitals. The committee in charge recommended that certain quarters in the hospitals should be set apart for tuberculous subjects. They should be in a separate pavilion, if possible, or, at least, it should have a separate entrance. The dishes, etc., should be numbered for individual use of the patients, and sterilizing apparatus should be provided for the linen and spittoons. Subjects with recognized tuberculosis should not have access to the other wards. Each ward should have several beds isolated from the rest of the room for provisional isolation of the dubious cases. There should be some establishment to serve as a home for the surplus tuberculous, and the number in the hospitals should always be kept down by evacuating the surplus, without further formality than a line from the physician in charge certifying to the diagnosis and demanding the admission of the patient on account of the crowded condition of the hospital quarters.

The Statue to Ollier.—On November 13 the colossal bronze statue of Prof. L. Ollier was unveiled at Lyons with appropriate ceremonies. Contributions for the statue had been received from physicians and surgeons the world around; some of the surgical societies made a special corporate contribution and sent a delegate to the ceremonies. Oscar Lassar of Berlin thus represented the German Surgical Association, and Lambotte of Brussels, van Stockum of Rotterdam and many other prominent surgeons were there in a similar capacity. The statue is the work of A. Boucher, one of the foremost sculptors of France, and represents Ollier standing, scalpel in hand. It is not far from the statue of Claude Bernard, another of Lyons' famous sons. In the addresses, Ollier's great work in promoting conservative surgery based on physiologic laws was duly emphasized. It was recalled that at the surgical congress held at Lyons in 1894 he exhibited 58 patients operated on according to these principles from ten to twenty-five years before, showing the fine functional results obtained in the new articulations resulting from his surgical intervention. On a table before him lay the bones resected from these patients, and those present could see for themselves the physiologic repair of the missing parts, and compare the bones with their regenerated substitutes.

Physician as Mayor.—Lyons is the second city in France, and for several years it has had a physician for mayor, Dr. V. Augagneur, who has recently been elected deputy to the national legislature, receiving 4,237 votes out of a possible 4,668. Dr. Augagneur is 49 years of age and is professor of pathology. He founded and edited for 15 years the *Province Médicale*, but relinquished this task when he became mayor. His stringent regulations in regard to posters, etc., have already been mentioned in THE JOURNAL, as also his nickname of "the emperor." His specialty is syphilography, and his address at the Brussels Preventive Congress led to the organization of the French extra-parliamentary preventive commission, of which he is one of the most active members, as also of the supreme board of the *Assistance Publique*—the administration of the hospitals, etc. He was a member of the city council for years before he succeeded Dr. Gailleton as mayor, and writes frequently for the local *Republican* on subjects of social economics and hygiene, popularizing the latter in a series of papers entitled "Chats with the Doctor," signed with a nom de plume. The *Gazette Médicale de Paris* gives the platform on which he was elected deputy. We notice that it includes the assumption by the national government of all railroads, mines, insurance, banks, monopoly of alcohol and sugar refining. Further planks in this medical platform are child labor, the eight-hour day and the entire responsibility of the proprietors in industrial accidents, surveillance of factories by inspectors and limitation of inheritance of property to the direct line, outside of the direct line fortunes to be taxed by a progressive assessment.

From the Seat of War.—The *St. Petersburg med. Wochenschrift* has been publishing extracts from the letters home of physicians at the seat of war. The issue for November 12 contains a long letter from Dr. O. Hohlbeck, dated September 24. He describes the first weeks in August as passed in tents watching the pouring rain, with very little to do in the hospital in his charge just outside of Liaoyang. Then the Japanese advanced on the town and the great battle was fought, the Russians firing 104,000 grape shells and the Japanese many more. The hospital, with accommodations for 400, was soon overcrowded, and every day detachments of the wounded were forwarded by train to hospitals farther inland, to make room for the new hundreds and thousands constantly arriving. The wounded seemed to do well at first; if they could have been tended further without removal all would have been well, but the necessary evacuation and railroad trip brought on complications in many cases. The station was close to the hospital quarters and the reserve troops helped to carry the wounded to the cars. The system and order displayed seem to have been remarkable under the circumstances. The hospital force worked night and day and gradually grew so accustomed to the infernal din that they almost ceased to notice it. The thought of personal danger amid the shrapnel shells bursting around them does not seem to have occurred to them. The evening of the second day the commanding officer came that way and was amazed to find the hospital still there. He ordered them to clear out at once and move to a safer place up the railroad. So the tents were taken down and all the hospital paraphernalia put on the train and the hospital established again at a point farther north. Hohlbeck remarks that he did not have much linen to pack, as he had given away all of his to the wounded. Just before the hospital was evacuated several hundreds of the wounded were taken to the train, and as the soldiers were all engaged in the battle, the hospital force had to manage as best they could alone. He draws a graphic picture of the waiting for the trains, after nightfall, hundreds of wounded lying in tents or on the ground, in an agony of dread lest they be left behind, no lights allowed, and the cannonading and firing keeping up incessantly. The day had been the mikado's birthday and the Japanese were making superhuman efforts to complete their work on that anniversary. These letters are all in German, and are most interesting from every point of view. As they were not written for publication, the simple, homely style is all the more forcible. The surgeons found it necessary to operate at once in cases of injury of the blood vessels or of the bladder and in wounds of the skull, especially those with splinters and those in which the bullet took a tangential course. All other injuries were merely dressed and further surgical intervention postponed. The *Russkii Vratch* of November 6, No. 45, contains an article in Russian on the "Evacuation of the Wounded," read before the Charbin "Temporary" Medical Society in September. The physicians at the front are anxious to know if any means are known for restoring to consciousness persons overcome by the fumes of lyddite.

LONDON LETTER.

Presentation to the University of Cambridge of Dr. Ole Bull's Drawings.

The University of Cambridge has recently been placed under considerable obligation to Dr. Ole Bull, the eminent ophthalmic surgeon of Christiania, by his gift of 372 highly finished drawings in water color, illustrating diseases of the eye and ear. These drawings were exhibited at the museum of the recent meeting of the British Medical Association. They are portraits taken from typical and rare cases met with in hospital and private practice during the last thirty-six years, and show a minute accuracy and realism which have seldom been equaled. An important feature is that the collection is purely clinical, without any attempt at diagrammatic representation, and without exclusion of cases

which slightly differ from the usual type. Thus each disease is illustrated by drawings (with brief clinical notes) of a series of cases which should convey to the student a clear idea of its most common forms and variations. In his work, Dr. Ole Bull displays a high degree of technical excellence and the advantages of the surgeon being his own draughtsman; for only the trained observer can delineate the finer points of morbid changes with a correct appreciation of their meaning and importance. The thanks of the university have been given to Dr. Bull by a special act of the senate, which is accorded only to donors of gifts of recognized value.

The Conveyance of Smallpox by Vagrants.

The conference of sanitary authorities of England and Wales, to decide on a remedy for the tramp nuisance, referred to in THE JOURNAL, November 5, was held in London November 10, under the auspices of the London County Council. Many motions were adopted, and a committee was appointed to bring the views of the conference to the notice of the local government board and also to obtain parliamentary support. The members of the conference seemed to be of the opinion that the rights of the vagrant to personal liberty should be set aside where questions of public health are concerned. They considered that powers should be conferred on local sanitary officials to detain him if he is suspected of liability to convey infectious diseases, and to vaccinate or to revaccinate him and to disinfect his clothing. The conference also requested an investigation of the causes of vagrancy in Great Britain, and of the best methods for its repression.

The Infants' Health Society.

This society, formed last spring to spread the knowledge of the best way to combat the factors prejudicial to the health of infants, desires to maintain an infants' hospital; to encourage the formation of dispensaries and milk depots to supply with or without payment food adequate for the infant; and generally to further the work by means of pamphlets, leaflets, lectures, etc. A special committeee, including Mr. Mayo Robson and Sir A. D. Fripp, will carry on a special hospital at Hampstead under the name of the Infants' Hospital. Sir Lauder Brunton, Dr. T. M. Rotch and Dr. Henry Ashby have been appointed consulting physicians and Dr. R. R. Vincent, physician. The society takes as its postulate that the public are lamentably deficient of the knowledge of the right manner to succor their children and that the medical profession does not realize that fact. The society has just published a pamphlet stating that one-fourth of the deaths in the United Kingdom occur in children under the age of one year and that a large proportion of those which survive develop rickets. Attention is called to the almost complete failure of the present method of rearing infants of the working class. The remedy proposed is the encouragement of maternal nursing under proper conditions and the insuring of adequate substitute food when this is impracticable. It is proposed to establish the following organization: 1, A milk depot or out-patient department where babies can be seen at regular intervals by a physician, who will prescribe suitable food; 2, a trained nurse resident in the district, with special experience in regard to infants, and 3, the co-operation of coroners so that inquests may be held on all infants whose deaths are *prima facie* due to improper feeding.

Arsenic in the Urine.

Mr. William Thomson, F.I.C., of Manchester has proved by an interesting investigation that arsenic may occur in the urine as a result of the environment of the individual. He found arsenic in the urine of some people living in that city and the question arose as to its source. In the urine of inhabitants of Manchester convalescing at the seaside, arsenic was only exceptionally found. The urine of persons engaged in glass manufacture in which arsenic was used was found to contain the drug in considerable quantities. Similar results were obtained with the urine of persons engaged at Swansea in metallurgic work in which the presence of arsenic may reasonably be presumed. It was also found in the urine of those not engaged in the operations, but living near the works. Laborers in nickel and cobalt works, copper smelters, colliers, pearl grinders and spelter furnace-men all excreted arsenic in the urine. On the other hand, the urine of people living in districts where only peat is burned was free from arsenic. Milk taken from cows in the neighborhood of Manchester contained minute quantities of arsenic, while samples taken from cows in the Hebrides showed no trace. Mr. Thomson also examined grilled meat for arsenic, as it was considered probable that arsenic from the coal or coke used in grilling might contaminate it. This was found not to be the case, probably owing to the rapid current of air between the fire and the meat, which carries away any arsenic that may exist in the fuel. In cigarette papers only an inappreciable amount of arsenic was found. In the thyroid gland Mr. Thomson found a very minute quantity of arsenic, so minute that he thought it could hardly be regarded as a normal constituent, as Gautier had stated. The heart, spleen, liver, kidney and rib bones were found free from arsenic, but the lung contained considerably more arsenic than the thyroid gland and the hair a great deal more than either. In the brain a minute quantity was found.

The Royal College of Surgeons of England.

The annual meeting of the fellows and members of the Royal College of Surgeons of England was held with the president, Mr. Tweedy, in the chair. He placed before the meeting a report dealing with a large number of matters affecting the profession. Amongst these was the question of instituting a diploma in tropical medicine and hygiene. The attention of the council of the college was first called to the subject by the colonial secretary, who wrote referring to the decision of the University of Cambridge to establish such a diploma (as previously announced in THE JOURNAL) and suggesting the desirability of similar encouragement being given by the college to the study of tropical medicine. The Royal College of Physicians received a similar communication and the question was referred to the joint committees of management of the two colleges who, while expresing an opinion in many respects adverse to the proposal, nevertheless recommended that after a sufficient period of observation of such tropical diseases candidates should be admitted to an examination held by the royal colleges and, on passing, receive a diploma. After further opposition from the College of Physicians, who would not adopt the recommendation, holding (with their usual conservatism) that as tropical medicine is only a part of general medicine, such a diploma is unnecessary, a conference was held between representatives of the two colleges, and the following recommendations were adopted: 1. That visitors be appointed to attend the examinations of the School of Tropical Medicine and to report on the scope and study and on the examination, and that a request be addressed to the naval, military and colonial authorities to allow visitors to attend their examinations in tropical medicine for a similar purpose. 2. That at the end of a year a report be made by these visitors on the whole subject of tropical medicine. 3. That in the event of the colleges adopting these recommendations a communication be sent to the colonial secretary.

Another subject of the report was the communication received by the council from the Spectacle Makers' Company asking for the views of the college on a proposal to include sight testing in the examination held by the company and to extend their diploma by certification of efficiency therein (a proposal previously condemned by the British Medical Association at the last annual meeting, and by the Ophthalmological Society, as previously reported in THE JOURNAL). In replying, the council said that "considering the hidden dangers and the untoward possibilities that may attend almost any morbid state of the body, it is against public safety and welfare that any one should be deemed competent to prescribe any remedy or appliance who has not had an efficient medical and surgical training. In the interest of the public no countenance should be given to any proposal likely to foster the belief that tradesmen, whatever be their technical skill, are safe guides in the treatment of diseased conditions." The usual resolution, which has been passed for the last 20 years, condemning the refusal of the council to accede to the demand of the members for representation on that body was passed.

The New Buildings of the Liverpool University.

The foundation and development of universities in the provinces on the basis of the local medical schools is a phenomenon of quite recent years. New buildings of the medical school and a new physics laboratory have been opened at Liverpool by the chancellor (the earl of Derby) and Lord Kelvin respectively. A new anatomic museum 60x40 feet, lighted on both sides and surrounded by a gallery, and a dissecting room 70x40 feet, lighted on both sides as well as from the roof, have been built. Between the medical school and the physics laboratory are the laboratories of physiology and pathology named after the late Rev. Thompson Yates, who munificently provided the cost, and the Johnston laboratories of biochemistry, tropical medicine and comparative pathology. The physics laboratory covers 9,600 square feet and has an average height

of 55 feet. The foundation is on solid rock and every precaution has been taken to provide the solidity and rigidity required for the department. The buildings are heated by low-pressure hot water, ventilated by an exhaust fan in the roof and supplied with electricity for lighting and other purposes. In fact, they are replete with every modern apparatus and improvement. The cost is $500,000.

Correspondence.

The Crusade Against Tuberculosis in St. Louis.

ST. LOUIS, Dec. 1, 1904.

To the Editor:—St. Louis is keeping pace with other cities in this work. Following the presentation of the subject of the limitation of tuberculosis in the conference of charities last spring, a committee on organization was appointed resulting in the formation of the St. Louis Society for the Prevention of Tuberculosis. The plan adopted was to make each branch as representative as possible and yet to some extent interdependent. The chairmen of the different special committees constitute the executive committee, which in turn is made the special committee on tuberculosis of the Civic League, which has over 3,000 members. In this way the society has the indorsement and sanction of the league without being limited in its work. The advisory committee consists of the president or manager of each large charity association, viz., the Provident Association, the Jewish Charities, the St. Vincent de Paul, the Salvation Army, and a member of the St. Louis Board of Health. The publicity committee includes the editor of each of the large dailies and the editors of medical journals. Beside these there are the committees on legislation, inspection, ways and means and the medical committee.

The plan of work has been somewhat delayed by the exposition, it being thought unwise to attempt public action until after December 1, but the measures proposed are as follows:

1. A statement to the public of the prevalence and danger of tubercular infection and an appeal for active, personal co-operation.

2. The distribution of leaflets in different languages with instructions for the hygienic care of the sick, the disposal of the sputum etc.

3. The inspection of the tenement parts of the city and the classifying of reported cases and the preparation of statistics as to places of greatest house infection.

4. Public lectures and school instruction.

5. Appointing of physicians in each ward who will give an hour in their office two or three times a week to the consumptive poor who come with an inspector's card.

6. The enforcement of the antispitting law in public places.

The question of a central dispensary and city sanatorium will come up later. Meanwhile a bill is pending in the city council giving the health commissioner specific power in dealing with tuberculosis in the crowded parts of the city. The new city hospital almost completed, will have a special pavilion for the consumptives, and it will not be long till we will have a city sanatorium outside the city limits for the convalescent and those in early stages.

The work at Mt. St. Rose, under the care of the Sisters of St. Mary, has been most gratifying. While the percentage of cures has not been great, possibly because cases in all stages are admitted, there certainly is a great opportunity for study in the care of these cases and of the methods for prevention and limitation. Plans for additional buildings are now completed which will double the present capacity.

Active effort in the work of the Society for the Prevention of Tuberculosis has been delayed because of the fact that the attention of all St. Louisans has been more or less given to the World's Fair, but with the happy termination of that enterprise we propose a more aggressive campaign. With an excellent organization and thorough indorsement by our great charities and health department, we hope to at least keep pace with other cities.

There is no doubt but that the limitation of tuberculosis is the question of greatest interest just now not only to the medical profession, but also to the public. It is largely a matter of education, for, while we do not know all about it by any means, if we only intelligently apply what we do know the disease will be largely controlled. WILLIAM PORTER.

Travel Notes on Ceylon and the Singhalese.

CHICAGO, Nov. 23, 1904.

To the Editor:—I have read with much interest the "Travel Notes" on Ceylon by your able correspondent, Dr. Nicholas Senn. The statements of Dr. Senn apparently seek to give the impression that the Singhalese are the aborigines of Ceylon and are savages. The doctor says that "Ceylon was called Singhala by the natives of the island." It is not so. Originally Ceylon was known as Lanka or Lanka Dwipe (meaning the resplendent island). The word Singhalese was not derived from the name of the island, and the Singhalese are not the aborigines of Ceylon. Singhala (Sanskrit) means, literally, lion-killer—Singha, lion; hala, to fell. And the story is this: Wangu Desa, northeastern part of India, was the original abode of the ancestors of the present Singhalese race. A lion that devastated a part of that country, defying the prowess of many warriors, was killed by Prince Singhabahu, who was from that time known as the lion-killer. The band of warriors of the Rajput caste who came over to Ceylon under the leadership of Prince Wijaya, the son of Prince Singhabahu, called themselves Singhalese or lion-killers.

The Singhalese are the descendants of the Aryans of Central Asia and are members of the Indo-European or Caucasian race (see reports of John Bartholomew, F.R.G.S. Edinburgh).

"The rapid increase of the population of Ceylon," says Dr. Senn, "is not in accord with the fate of our Indians and Polynesians, whose rapid decimation and eventual extermination followed so promptly the footsteps of civilization." Allow me to say that the Singhalese have been a highly civilized and enlightened people for many centuries. Surely, however, the students of history are aware that the civilization of the world originated in north India, the original abode of the Singhalese race. Permit me to say that when I speak the word civilization I mean it in its spiritual as well as in its material sense. When the ancient Britons were in the wildest confusion on the banks of the Thames, having only leaves to cover their backs, we lived in substantial palaces built of stone, in the midst of luxurious surroundings. The ruins of palaces, temples, etc., which can be seen in the different parts of the island, eloquently testify to the fact of my statements. . . . The Singhalese should not be judged by the street beggars. The better classes of Singhalese have never been satisfied with the loin cloth alone. We have always robed ourselves in costly garments made of the finest textures of cotton and silk. . .

I can not help but say that some of the results of the intercourse with Europeans are the introduction of abominable intoxicants, licensed prostitution and sensualistic habits, etc., and it is no wonder that the weaker races that were willing to ape the Europeans disappeared altogether. I am not blind to the many excellent qualities the Europeans possess, but I am forced to make the statement that those bad qualities counterbalance the others. V. WIJETUNGE, M.D.

365 East Superior Street.

Discussion on Proprietary Remedies.

PHILADELPHIA, Dec. 5, 1904.

To the Editor:—On page 1680 of THE JOURNAL of the American Medical Association I am quoted as stating that eucain "is probably not worth anything." I trust that you will publish the statement that I had no intention whatever of singling out in the discussion eucain, and of stating that "it is probably not worth anything," for I have never believed this. JOSEPH P. REMINGTON.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

INTERNAL VACCINATION.

EAST ORANGE, N. J., Nov. 28, 1904.

To the Editor:—In THE JOURNAL, November 26, you state that, so far as known, antitoxin, when administered by the mouth instead of by hypodermic injection, is powerless, because the digestive juices destroy the antitoxin before it can be absorbed by the system. You refer him also to an editorial in the same number, condemning the practice of certain homeopaths in Indiana [Iowa is evidently meant.—EDITOR] who are giving vaccine internally as a prophylactic against smallpox, and you say: "When taken internally, antitoxin and vaccine are easily [Our editorial said "usually," not "easily."—EDITOR.] digested, and thus destroyed." It is with diffidence one questions editorial pronouncements, but there is much to be said against the view here expressed. During the last few years several communications from physicians have appeared in the columns of the London *Lancet*, and very probably elsewhere, concerning the administration of antitoxin by the mouth, and all speak very favorably of it, as it is a much less troublesome method with children, and the remedy loses nothing of its efficacy. The diagnosis had been confirmed in many cases by bacteriologic examination. My own experience in undoubted cases of diphtheria is similar. Further, in a doubtful case recently, where antitoxin was given by the mouth before the report from the board of health had been received, a few days later after the subsidence of all symptoms, there suddenly appeared on the body of the patient, an extensive erythematous rash, not resembling the characteristic eruptions of the infective fevers, and unaccompanied by any of their symptoms, that was evidently due to the action of the antitoxin. Why should antitoxin be destroyed or rendered inert in the stomach more so than other toxic substances? As to the particular prophylactic method mentioned against smallpox. I am not a homeopath, and am not greatly concerned to defend the practice. Indeed, I frankly confess that I never heard of it before. But during a residence abroad, I have known patients—children and others—to have been deliberately inoculated with smallpox by inserting in the nostril the crust of a pustule from a patient suffering with the disease, this being the primitive custom of the country. But why should this homeopathic practice be thought unreasonable? The specific action of vaccine is due to certain micro-organisms. Do not the germs of many diseases survive contact with the gastric juices, or has Koch's dictum as to the difficulty or impossibility of conveying tuberculosis by means of contaminated food and drink been so stretched as to cover all communicable diseases? The germs of typhoid fever certainly survive such contact, and as if to place the matter beyond all doubt, a nurse in a French hospital who wished to commit suicide, swallowed the contents of two tubes of a pure culture of typhoid germs. She did not die, but she had a very severe attack of typhoid fever, which seems to show that the germs did not die either, at least not for many days, and not until they had done their work. So with protozoan germs of malaria, Ronald Ross, who has done so much original investigation in this field, speaks of having seen cases of malaria arise in persons who had drunk water containing mosquitoes and their larvæ. These germs, therefore, escaped digestion, first in the stomach of the mosquito, and later in that of the human being. Will you not favor us with a little further light on this whole subject, as, if we are sure of the efficacy of the method, it is certainly a great advantage to be able to give a crying, struggling child the serum by the mouth, instead of by hypodermic injection.

E. M. M.

ANSWER.—We do not find the clinical evidence cited by our correspondent sufficient to show that diphtheria antitoxin has any effect when given by mouth. His observations are too few, and, which is more important, they lack altogether adequate control observations. The results of observations of such character do not at all satisfy scientific requirements. The fact that an erythematous rash appeared on the body of a patient who had received diphtheria serum by mouth proves absolutely nothing as to absorption of antitoxin, even though we may grant that the serum caused the eruption, because we know that it is not the antitoxin but other substances that give rise to the eruptions that sometimes follow injections of antitoxic serums. The following extract from Oppenheimer's "Toxin and Antitoxin" will give a good idea of what we really know concerning the possible fate of diphtheria antitoxin in the digestive tract: "In the digestive canal it (antitoxin) appears to be destroyed. Dzierzgowski found that immunization could not be accomplished by ingestion of antitoxin by mouth. Only in rabbits is it possible to demonstrate a slight resorption after pouring antitoxin into the empty stomach. Hydrochloric acid is especially injurious, but neutral pepsin, pancreas and bile are fairly harmless. Nevertheless, it is not absorbed from the intestines." Carrière (*Ann. d. l'Inst. Pasteur*, 1899, xiii, 435) found that digestive ferments and intestinal organisms destroy antitoxins. Hence we see that experimental studies afford no support for the internal administration of diphtheria antitoxin. As to our correspondent's statements anent "internal vaccination," we would refer to our comments on Dr. Conner's letter. Nasal inoculation with the crusts of smallpox is a far different thing from "internal vaccination." In the further interest of greater discrimination in the use of the results of observations, we would ask whether other sources of malarial infection were rigidly excluded in the case of the persons alleged to have acquired malaria after drinking water containing mosquitoes and their larvæ. Finally, granting that such water may convey malaria, it nevertheless must be insisted that as yet we are not in position to draw many analogies between malaria, smallpox and "internal vaccination."

PANA, ILL., Nov. 30, 1904.

To the Editor:—I note your editorial on "Internal Vaccination," page 1636, and the answer to the question asked about the internal administration of antitoxin, page 1647, in which you say: "We do not know how universal in that school (homeopathic) is the faith in this method, but we can hardly believe that an educated homeopath would advocate it. . . . When taken internally, antitoxin and vaccine are usually digested and thus destroyed." Formerly I thought there could not be any other sensible way of looking at the question, and Feb. 4, 1902, I wrote an article for publication in the public press, at the request of a member of the State Board of Health, on "The Proper vs. Internal Vaccination," in which I denounced as silly and worse than useless the so-called "internal method" of vaccination. Since that date I have hunted up the authorities on the subject, and find in an accepted work on veterinary medicine, viz., "The Pathology and Therapeutics of the Domestic Animals," by Dr. Friedberger, professor of veterinary medicine in the Royal Veterinary School at Munich, and Dr. Fröhner, professor of veterinary medicine in the Royal Veterinary School at Berlin, translated by Prof. W. L. Zuill, M.D., D.V.S., late professor of surgery and obstetrics in the veterinary department of the University of Pennsylvania, the following words on the subject: "Very rarely is variola in the horse generalized. Chauveau has produced this form by inoculating the virus into the veins under the skin, and by causing it to enter the organism by inhalation or by ingestion. Warlomont and Pfeiffer have obtained similar results." Volume 2, page 629. I am not arguing for the method; I merely point to the curious statement, and shall let it go for what it is worth.

J. J. CONNER, M.D.

ANSWER.—Before long we may find it advisable to discuss more fully in our editorial columns some of the questions raised by the proposition to introduce "internal vaccination." At this time it may be well to point out for emphasis the general fact that vaccination and antitoxic treatment of diseases, such as diphtheria and tetanus, are fundamentally different and wholly distinct procedures. Antitoxin and vaccine are radically different substances. For the sake of clearness in discussion, these facts must be definitely recognized. The quotation cited by Dr. Conner certainly can have little or no value in deciding the real merits of the proposed internal vaccination in man. In the first place, the passage quoted is translated somewhat differently in Hayes' rendition of the same work into English: "Horse-pox rarely becomes general, a fact which Chauveau observed when he made his inoculation experiments with vaccine, intravenously and subcutaneously, by inhalation and by feeding. Warlomont and Pfeiffer obtained similar results." There is nothing in this statement to show that the virus of horse pox is absorbed from the equine stomach. Unfortunately, we are not in position to consult the original to form some idea as to which translation is the more correct. The practical disadvantages of "internal vaccination," even if it were possible in this way to immunize susceptible individuals, are so obvious that the method will not receive serious consideration from the practical point of view. How would we know whether the vaccination had taken or not? And would there form vaccine vesicles on the mucous membrane of the stomach or some other part of the digestive tract? To seriously propose "internal vaccination" in the present state of our knowledge bespeaks a condition of mind which we are loathe to believe exists in any "school."

INTERNAL DISINFECTANT IN INFECTIOUS CONDITIONS.

ATLANTA, GA., Dec. 5, 1904.

To the Editor:—Please tell me where I can obtain loretin, the drug mentioned in the abstract of Dr. Konrad Küster's article on page 1667 of THE JOURNAL. Do you know anything of its merits? J. E. A.

ANSWER.—The preparation in question may be obtained from Victor Koechl & Co., 122 Hudson St., New York City. We know nothing about its merits.

APPOINTMENT OF PANAMA HEALTH OFFICERS.

To the Editor:—Will you be so kind as to tell me how the medical corps of the health department of the Panama Canal is appointed? A. B. C.

ANSWER.—Through the Civil Service Commission, which should be addressed at Washington, D. C., for further particulars.

Marriages.

WALTER MILES, M.D., to Miss Zina Collins, both of Viola, Ill., November 9.

LINCOLN M. BOWMAN, M.D., to Mrs. Tillie Herzog, both of Alton, Ill., November 24.

JAMES E. BODEN, M.D., Milwaukee, Wis., to Miss Blanche L. Griffith of Chicago, November 1.

EDWIN WARREN RYERSON, M.D., to Miss Adelaide K. Hamilton, both of Chicago, December 6.

CLIFFORD BAILEY FARR, M.D., to Miss Katharine Elliott, both of Philadelphia, November 22.

EDWARD GUSTAVE BURGMAN, M.D., to Miss Winifred La Velle, both of Chicago, November 16.

CHARLES SAUR, M.D., Cincinnati, Ohio, to Miss Georgia E. Hayes of Cleves, Ohio, November 17.

WILLIAM J. HOSFORD, M.D., to Miss Nellie Elizabeth Benson, both of Alameda, Cal., November 23.

SUMNER M. MILLER, M.D., Peoria, Ill., to Miss Sarah C. French of Evansville, Ind., November 16.

W. TURNOR WOOTTON, M.D., to Miss Emma Wilson Whittington, both of Hot Springs, Ark., October 5.

JAMES H. MONTGOMERY, M.D., Chambersburg, Pa., to Miss Nell Singleton Jackson at Miami, Fla., November 24.

EDWARD L. H. BARRY, M.D., Jerseyville, Ill., to Mrs. Anna R. Haves of Wilkinsburg, Pa., at Alton, Ill., November 22.

REX A. SCHLAG, M.D., Monroe, Iowa, to Miss Emma A. Swanson of Cambridge, Neb., at Des Moines, Iowa, November 16.

Deaths.

William Robert Hutchinson, M.D. Castleton (Vt.) Medical College, 1849, delegate from Vermont to the American Medical Association in 1877 and 1892, member of the Vermont State Medical Society, thrice president of the Franklin County Medical Society, state senator in 1869 and 1870, died at his home in Enosburg Falls, Vt., November 26, from cancer, aged 79.

William L. Newell, M.D. Jefferson Medical College, Philadelphia, 1859, a member of the American Medical Association, one of the ablest practitioners of southern New Jersey; a surgeon during the Civil War, and for many years local surgeon of the Pennsylvania system, died at his home in Millville, N. J., after a prolonged illness, November 27, aged 73.

William McGillivray, M.D. Toronto (Ont.) University Medical Faculty, 1890, a member of the College of Physicians and Surgeons of Ontario, the Minnesota State Medical Society and the Southwestern Minnesota Medical Society, died at his home in Pipestone from septicemia following an operation wound, after a short illness, November 28, aged 36.

James Newton McCandless, M.D. Jefferson Medical College, Philadelphia, 1863, of Prescott, Ariz., surgeon during the Civil War, for 35 years a resident of Arizona, died at Mercy Hospital, Prescott, November 25, aged 67. At a meeting of the Yvapai County Medical Society resolutions laudatory of its late member were unanimously adopted.

William Brooks Gray, M.D. Jefferson Medical College, Philadelphia, 1852, some time vice-president of the Medical Society of Virginia, of the Richmond Medical and Surgical Society and of the Richmond Microscopical Society, died at his home in Richmond, Va., November 24, aged 71.

John P. Ralls, M.D. Medical College of Georgia, Augusta, 1845, a member of the Alabama State Constitutional Convention of 1861, and a year later a member of the Confederate Congress, died at his home in Gadsden, Ala., November 23, after a long invalidism, aged 85.

William L. Coleman, M.D. Medical College of Georgia, Augusta, 1857, an authority on yellow fever and sent by the United States government to Cuba in 1898 as an expert to study fever conditions there, died at his home in Houston, Texas, November 27, aged 70.

Alexander Rudolph Becker, M.D. New York Medical College, New York City, 1862, of Seattle, Wash., surgeon in the Civil War, who established a pathologic laboratory in Seattle in 1900, died in Victoria, B. C., from peritonitis following dysentery, September 2, aged 62.

James E. Gildersleeve, M.D. New York University, New York City, 1853, for many years health officer of Brookhaven, N. Y., died at his home in Port Jefferson, Long Island, November 25, nine days after an accident in which he had been thrown from his carriage, aged 78.

William E. Palmer, M.D. University of Buffalo (N. Y.) Medical Department, 1897, of Spokane, Wash., died at Sacred Heart Hospital, in that city, November 21, from acute nephritis, two days after an operation for appendicitis, aged 32.

James M. Brown, M.D. University of Louisville, 1882, chief medical examiner of the Pennsylvania Railroad Relief Association, died at his home in Spruce Creek, Pa., November 28, from paralysis, after an illness of sixteen days, aged 56.

James E. Booth, M.D. Medical College of Virginia, Richmond, 1894, of Petersburg, Va., died at the Memorial Hospital, Richmond, November 17, five days after an operation for appendicitis, which was followed by peritonitis.

William R. Newsome, M.D. University of Nashville Medical Department, 1860, the oldest practitioner in Carroll County, Tennessee, died at his home in McLemoresville November 17, after a short illness, aged 73.

William Osborn Taylor, M.D. Bellevue Hospital Medical College, New York City, 1866, of San Francisco, Cal., died in Alameda Hospital, November 11, from chronic leptomeningitis, after a long illness, aged 64.

William F. Cushman, M.D. College of Physicians and Surgeons in the City of New York, 1862, a retired physician of Chelsea Village, Manhattan, died at his home in Ridgefield, Conn., December 1, aged 66.

Leonard F. Pitkin, M.D. New York University, New York City, 1879, surgeon for the Interborough Company, died at his home in New York City, December 2, from kidney disease after a long illness, aged 46.

Phoebe A. Sprague, M.D. Northwestern University Woman's Medical School, Chicago, 1873, formerly of Springfield, Mass., died suddenly at her home in Albion, N. Y., November 28, aged 56.

Eli Griffin, M.D. Atlanta (Ga.) Medical College, 1856, one of the oldest physicians of Fulton County, Georgia, died at his home on the Brown Mill road near Atlanta, November 30, aged 75.

Edward F. Stevens, M.D. University of Maryland School of Medicine, Baltimore, 1853, some time coroner of Baltimore, died at his home in that city, November 19, from apoplexy, aged 77.

Abraham H. Shiveley, M.D. University of Louisville Medical Department, 1852, of Pleasant Hill, Mo., died at the home of his daughter in Kansas City, Kan., November 11, from dropsy, aged 76.

Thomas M. Edwards, M.D. Bellevue Hospital Medical College, New York City, 1874, of Dunlap, Iowa, died at the Woman's Christian Association Hospital, Council Bluffs, Iowa, November 18.

C. T. Taggart, M.D. Central College of Physicians of Indianapolis, 1886, a member of the Twenty-sixth General Assembly, died at his rooms in Sulivan, Ill., October 28, from pneumonia, after a brief illness, aged 57.

William H. Hill, M.D. Tulane University of Louisiana, New Orleans, 1869, health officer of Smith County, Mississippi, and once state senator, died at his home in Sylvarena, November 27.

Henry Cornelius Comegys, M.D. University of Maryland School of Medicine, Baltimore, 1854, died November 29 at his home in Scranton, Pa., after an illness of five days, aged 71.

Robert G. Wiley, M.D. Dartmouth Medical School, Hanover, N. H., 1836, died at his home in Bethel, Maine, where he had practiced for more than 67 years, November 22, aged 97.

Lorenzo M. Johnson, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, died at his home in Charleston, Ohio, November 13, from paralysis, aged 86.

Robert **E. Dennis, M.D.** Medical College of the State of South Carolina, Charleston, 1858, died suddenly from acute gastritis at his home in Bishopville, S. C., November 28.

Charles **A. Foster, M.D.** Ohio, 1848, died at the Thompson Memorial Hospital, Canandaigua, N. Y., November 25, from apoplexy, after a prolonged illness, aged 89.

David **G. Hartzell, M.D.** Jefferson Medical College, Philadelphia, 1858, surgeon during the Civil War, died at his home in West Philadelphia, October 25, aged 68.

William **A. Lindsay, M.D.** Medical Department University of Cincinnati, 1866, formerly of Louisville, died recently from pneumonia, at his home in English, Ky.

William **J. Tripp, M.D.** New York, 1881, died at his home in New York City, November 22, from cancer of the liver, after an illness of several months, aged 60.

J. N. Iliff, M.D. College of Physicians and Surgeons of Kansas City, Kan., 1895, died at his home in Welch, Cherokee Nation, I. T., August 23, from typhoid fever.

Austin S. Moak, M.D. Pennsylvania, 1872, of Helmer, Ind., died at St. Joseph's Hospital, Fort Wayne, after an operation for cancer, November 19, aged 55.

Charles Manville Downs, M.D. Yale University Medical Department, New Haven, Conn., 1883, died suddenly at his home in Chicago, November 24, aged 44.

Josephine Briggs, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, died at her home in Pasadena, Cal., September 8, aged 56.

Robert W. Eddleman, M.D., one of the first settlers of Pilot Point, Texas, died at the home of his son in that city, November 13, from pneumonia, aged 81.

Charles S. Durand, M.D. Medical College of Ohio, Cincinnati, 1889, of Chattanooga, Tenn., died at San Antonio, Texas, after a long illness, November 23.

William S. Hunt, M.D. Cincinnati College of Medicine and Surgery, 1870, died at his home in Springfield, Ohio, November 21, from apoplexy, aged 58.

Eugene Edward Martin, M.D. Niagara University Medical Department, Buffalo, N. Y., 1888, died at his home in Buffalo, November 23, aged 37.

A. G. L. Van Lear, M.D. Portland (Maine) School for Medical Instruction, 1867, died at his home in Long Glade, Va., September 8, aged 71.

Larkin L. Clark, M.D., formerly representative from Elbert County in the Georgia legislature, died recently at his home in Elberton, aged 85.

Alexis I. Dupont, M.D., but never a practitioner, died at his home near Greenville, Del., November 26, after an illness of one year, aged 61.

Pleasant T. Mask, M.D. University of Louisville, Ky., 1857, died at his home in Fourche Dam, Ark., November 27, after a lingering illness.

David E. Strain, M.D. Jefferson Medical College, Philadelphia, 1854, died at his home near Brownsburg, Va., November 26, aged 75.

John J. Diehl, M.D. University of Giessen, Germany, 1865, a pioneer physician of Centralia, Ill., died recently at his home in that city.

J. H. Alexander, M.D., for more than 50 years a practitioner of Hermon, N. Y., died at his home in that village, November 12, aged 80.

Jacob A. Bixler, M.D. Jefferson Medical College, Philadelphia, 1866, died at his home in Carlisle, Pa., of apoplexy, December 3, aged 65.

Sherburne L. Wiswell, M.D. Vermont Medical College, Woodstock, 1853, died at his home in Cabot, Vt., November 26, aged 79.

John H. Ruppert, M.D. Medico-Chirurgical College of Philadelphia, Pa., 1896, died at his home in Paterson, N. J., November 28.

Wilford L. Dunkeson, M.D. Kansas City (Mo.) Medical College, 1888, died re ently at his home in Sprague, Mo., aged 41.

Marvin G. Hart, M.D. Illinois, 1883, of Chicago, died from apoplexy at St. Luke's Hospital, Chicago, November 26.

David W. Birge, M.D. Cleveland Medical College, 1848, died at his home in Hector, N. Y., November 24, aged 82.

Ascher S. Parker, M.D. Ohio, died at his home in Kendallville, Ind., November 16.

Book Notices.

THE ART OF CROSS-EXAMINATION. By Francis L. Wellman, of the New York Bar. With the Cross-examinations of Important Witnesses in Some Celebrated Cases. New and Enlarged Edition. Cloth. Pp. 404. Price, $2.50 net. New York: The Macmillan Co. 1904.

This book, while primarily written for the lawyer, will be found both interesting and instructive by physicians. It is well in battle to know how the enemy looks on things and how he has entrenched himself, for then it will be more easy to meet his attacks. Physicians go on the witness stand more than any other class, and those who have had experience know to their sorrow what it is to go through the ordeal of a rigid cross-examination. Mr. Wellman has presented the matter in a very interesting way, and has mixed his suggestions with illustrative examples of cross-examinations, and not a few of these are examinations in which the witnesses were medical men.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY for Students of Medicine. By Winfield S. Hall, Ph.D., M.D. (Leipsic), Professor of Physiology, Northwestern University Medical School. With 89 Illustrations and a Colored Plate. Cloth. Pp. 245. Price, $2.75. Philadelphia and New York: Lea Brothers & Co. 1904.

This manual appears to meet its purpose very satisfactorily. The experiments designed to illustrate special physiology seem to be wisely selected, well arranged and clearly described. It may be permitted to suggest that one or two simple experiments might be introduced with advantage to illustrate the bactericidal and hemolytic qualities of normal blood. Phagocytosis by leucocytes also merits an experimental demonstration in the course of physiology. In general physiology muscle-nerve experiments are described with great detail from the electrical point of view. Unfortunately, there is not a single experiment to illustrate the rôle of ions in physiologic processes. In future editions it is hoped that this serious defect will be fully remedied.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY. For Students and Practitioners of Medicine. By Charles E. Simon, M.D., late Resident Physician Johns Hopkins Hospital. New (2d) Edition. Revised and Enlarged. Cloth. Pp. 500. Price, $3.25 net. Philadelphia and New York: Lea Brothers & Co.

The exhaustion of the first edition of this text-book in the comparatively short time of three years speaks well for its popularity and usefulness. The present edition has received many important additions, including an appendix of laboratory exercises which increases the usefulness of the book very much for the student and his instructor. Some chapters have been wholly rewritten, to-wit, those on digestion and the albumins. Simon's Physiological Chemistry may be recommended as a reliable and up-to-date text-book. Its arrangement is logical and the subject matter presented in a clear way.

THE OPTICAL DICTIONARY. An Optical and Ophthalmological Glossary of English Terms, Symbols and Abbreviations, Together with the English Equivalents of some French and German Terms Relating to Physical, Physiological and Pathological Optics, Optical and Other Instruments of Precision, and Terms Descriptive of Color and Photo-chemistry, to Which Are Added a Number of General and Mathematical Expressions. Edited by Charles Hyatt-Woolf, F.R.P.S. Cloth. Pp. 166. Price, $1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

This book gives a little more fully than the average dictionary the meaning of words and phrases used in ophthalmology. The list of symbols and abbreviations with their meanings, as employed by various authors, is also given. For the benefit of those who do not know Greek the author has added the Greek alphabet, which is frequently used in expressing optical and other mathematical data. The pronunciation of the letters is also given. This work should be of especial value to medical men who have not had ophthalmologic training as well as to specialists in ophthalmology.

THE URINE and Clinical Chemistry of the Gastric Contents, the Common Poisons and Milk. By J. W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Forty-one Illustrations. Seventh Edition, Revised and Enlarged. Cloth. Pp. 172. Price, $1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

When a handbook of this character has reached its seventh edition little need be said in its praise. Suffice it to say that the subjects of normal and morbid urine, gastric contents, poisons and milk are succinctly treated and the methods of analysis and examination well described.

State Boards of Registration.

COMING EXAMINATIONS.

Ohio State Board of Medical Registration and Examination, Columbus, December 13-15. Secretary, Frank Winders, M.D., Columbus.

State Medical Examining Boards of Delaware, Wilmington and Dover, December 13-15. Secretary, P. W. Tomlinson, M.D., Wilmington.

The Medical Examining Board of Virginia, Richmond, December 13-16. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, December 14-17. Secretary, J. McP. Scott, M.D., Hagerstown.

Missouri State Board of Health, St. Louis University, St. Louis, December 19-21. Secretary, W. T. Morrow, M.D., Kansas City.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, December 21 22. Secretary, J. F. Kennedy, M.D., Des Moines.

Oklahoma Medical Examining Board, Guthrie, December 28. Secretary, E. E. Cowdrick, M.D., Enid.

New Hampshire State Board of Medical Examiners, State House, Concord, December 28 and 29. Regent, Henry C. Morrison, Concord.

Utah State Board of Medical Examiners, Salt Lake City, January 2. Secretary, R. W. Fisher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, January 2-3. Secretary, Ancil Martin, M.D., Phoenix.

Board of Medical Examiners of the State of Oregon, Portland, January 3. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Minnesota State Board of Examiners, State Capitol Building, St. Paul, January 3. Secretary, C. J. Ringell, M.D., Minneapolis.

North Dakota State Examining Board, Grand Forks, January 3. Secretary, H. M. Wheeler, M.D., Grand Forks.

Rhode Island State Board of Health, Providence, January 5-6. Secretary, Gardner T. Swarts, M.D., State House, Providence.

Wisconsin Board of Medical Examiners, Hotel Pfister, Milwaukee, January 9-11. Secretary, Filip A. Forsbeck, M.D., Milwaukee.

State Medical Board of the Arkansas Medical Society, Little Rock, January 10. Secretary, J. R. Runyan, M.D., Little Rock.

Indiana State Board of Medical Registration and Examination, State House, Indianapolis, January 10-12. Secretary, W. T. Gott, M.D., Crawfordsville.

Vermont State Board of Medical Censors, Y. M. C. A. Building, Burlington, January 11-12. Secretary, S. W. Hammond, M.D., Rutland.

Board of Medical Supervisors of the District of Columbia, Washington, January 12. Secretary, Wm. C. Woodward, M.D., Washington, D. C.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

British Columbia Medical Board.—The examining board of the British Columbia Medical Council recently examined thirteen candidates for admission to practice in that province, nine of whom received licenses. The board for the current year consists of Dr. J. C. Fagan, Victoria; Dr. W. J. McGuigan, Vancouver; Dr. R. E. Walker, New Westminster; Dr. A. P. Proctor, Kamloops; Dr. J. M. Lefevre, Vancouver; Dr. J. C. Davie and Dr. O. M. Jones, Victoria.

Florida Report.—Dr. Louis de M. Blocker, secretary of the Medical Board of Examiners of the First Judicial District of Florida, reports the written examinations held at Pensacola during 1904. At each examination the number of subjects examined in was 7; number of questions asked, 70; percentage required to pass, 75. Five persons were examined, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Maryland Medical College	(1904)	78, 80
Med. Dept. Univ. of Tennessee	(1883)	76
Coll. of P. and S., Baltimore	(1897)	84
Meharry Medical College, Tennessee	(1904)	80

Georgia April Report.—Dr. W. V. Robertson, president of the Georgia State Board of Medical Examiners (Eclectic), reports the written examination held at Atlanta, April 1, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 80. Fifteen persons were examined, all of whom passed. All the candidates were graduates of the Georgia College of Eclectic Medicine and Surgery. The grade of 80 was reached by two, 82 by one, 84 by two, 85, 86 and 87 by one each, 89 by two, 90 by two, 93, 96 and 99 by one each. The general average attained was 87.6.

Georgia Homeopathic Report for 1904.—Dr. R. E. Hinman, secretary of the Homeopathic Board of Medical Examiners of the state of Georgia, reports the written examinations held at Atlanta during 1904. The number of subjects examined in was 10; total questions asked, 100; percentage required to pass, 75. Only two persons were examined and both passed. Both were graduates of the University of Michigan Homeopathic Medical College. One (1903) reached the grade of 77.1; the other (1886) reached the grade of 75.

Kentucky Regulations.—Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, has notified medical students that the new rule requiring applicants for admission to medical colleges to pass an examination[1] will be enforced. Dr. McCormack emphasizes the importance to the students of attending a college which complies with the requirements of the Kentucky State Board of Health.

Michigan October Report.—Dr. W. D. Harrison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 11-14, 1904. The number of subjects examined in was 19; total number of questions asked, 94; percentage required to pass, 75. The total number examined was 8, of whom 7 passed and one failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Michigan	(1904)	84.52, 84.15
Coll. of P. and S., Chicago	(1896)	80.21
Univ. of Helsingfors, Finland	(1903)	83.57
Western University, London, Ont	(1891)	89.68
McGill Univ., Montreal, Quebec	(1903)	90.63
Med. Coll. of Indiana, Indianapolis	(1904)	89.21
FAILED.		
Mich. Coll. of Med. and Surg	(1899)	66.52

New Hampshire April Report.—Dr. James T. Greeley, secretary of the New Hampshire State Board of Medical Examiners, reports written examination held at Concord, Sept. 8-9, 1904. The number of subjects examined in was 7, and total number of questions asked, 70. The total number examined was 24, of whom 20 passed and 4 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Boston Univ. School of Medicine	(1899) 88, (1896)	88
Baltimore Medical College	(1904) 77, 78,	75
Harvard Univ. Med. School, (1900) 77, (1903) 75,	(1904) 77,	83
Univ. of Vermont Med. School	(1904) 85, 85,	75, 82
Tufts College Med. School	(1904) 82, (1901) 78, (1903)	77
Dartmouth College Med. School	(1903) 79,	80
Medical School of Maine	(1904)	76
McGill University	(1904)	78
FAILED.		
Lavall University	(1902) 45, (1904)	72
Coll. of P. and S., N. Y.	(1902)	71
Univ. of Bishop's College	(1904)	69

New Jersey October Report.—Dr. E. L. B. Godfrey, secretary of the State Board of Medical Examiners of New Jersey, reports the written examination held at Trenton, Oct. 18-19, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 44, of whom 33 passed and 11, 25 per cent., failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Maryland	(1904)	85.7
Columbia University, N. Y., (1904) 84.1, 90.8, 81.5, 78.5, 85.6; (1903) 85.1, 86.2, 94.9; (1890) 87.		
College of P. and S., Boston	(1904)	79.1
Baylor University, Texas	(1904)	77.3
Baltimore Med. Coll.	(1904) 87.5, (1903)	81.2
Baltimore Univ. School of Med. (1904) 77.7, 80.3*; (1902		80.7
College of P. and S., Baltimore	(1903) 80.1,	76.8
Georgetown Univ., Washington, D. C.	(1903)	81.9
Jefferson Med. Coll., (1902) 85, 83.5*; (1903) 77.7, (1904) 79.6*, 81.7.		
Woman's Med. Coll., Penn	(1901) 79.7, (1903)	79.8*
Hahnemann Med Coll. and Hosp., Penn	(1904) 80.6,	78*
Medico-Chirurgical Coll., Penn	(1904) 75.8,	77.1
Johns Hopkins University	(1902)	90.7
Chicago Med. Coll.	(1879)	77.1
FAILED.		
Baltimore Univ. School of Med	(1904) 62.5*,	62.7
Albany Med. Coll.	(1902)	70.5
Illinois Med. Coll.	(1902)	64.5*
University of Naples, Italy, (1888) 65.6†, (1898) 71.7*, (1900) 71.2*, (1901) 68.5.		
College of P. and S., Boston	(1904)	70.1
Medico-Chirurgical Coll., Penn	(1903)	71.1
Columbia University, N. Y.	(1904)	73.6

*Second examination. †Third examination.

Oregon April and July Reports.—Dr. Byron E. Miller, secretary of the Oregon State Board of Medical Examiners, reports the examinations held at Portland, April 22 and July 14, 1904. The number of subjects examined in at each examination was 15; total questions asked, 100; percentage required to pass, 75.

At the April examination the total number examined was 32, all of whom passed. The following colleges were represented:

1. THE JOURNAL, Oct. 1, 1904, p. 994.

PASSED. College.	Year Grad.	Per Cent.
Imperial Alexander Univ.	(1896) 80, (1901)	80

Willamette University, (1904) the grade of 80 was reached by five and the grades of 81, 82 and 83 by one each.
University of Oregon, (1904) the grade of 79 and 80 were reached by one each, 81 was reached by five, 82 by four, 83 by four, and 84 by one.

American Medical College	(1897)	79
Ohio Medical College	(1881)	80
Rush Medical College	(1903)	80
University of Michigan	(1901)	79
College of P. and S., Chicago	(1895)	80
College of P. and S., San Francisco	(1903)	83

The general average for all representatives of Willamette University at this examination was 80.7; for all representatives of the University of Oregon, 76.75.

At the July examination the total number examined was 27, of whom 21 passed and 6 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Dunham Med. Coll., Chicago	(1901)	78
Creighton Med. Coll., Omaha	(1902)	87
Hahnemann Med. Coll., Chicago	(1904)	79
College P. and S., Keokuk	(1895)	75
University of Michigan	(1904)	86
University of Minnesota	(1892)	82
Jefferson Med. Coll., Philadelphia	(1904)	84
Western Univ. Med. Dept., London, Ont	(1904)	82
Northwestern University, Chicago	(1890) 84, (1904)	75
University of Iowa	(1901) 78, (1904)	76
Medical College of Ohio	(1893)	83
Harvey Med. Coll., Chicago	(1904)	83
Detroit Medical College	(1897) 87, (1903)	83
Michigan College of Medicine	(1897)	78
Kansas Medical College	(1900)	79
Rush Medical College	(1902)	90
Univ. and Bellevue Hosp. Med. Coll	(1899)	86
Cooper Medical College, California	(1904)	86
FAILED.		
Starling Medical College, Ohio	(1895)	74
Ohio Medical University	(1895)	71
Western Reserve Med. Coll	(1878)	59
St. Louis Coll. of P. and S	(1904)	61

Two non-graduates.

Pennsylvania June Report.—We quote here a further analysis which has been made of the June examination which we summarized in THE JOURNAL, August 27, page 623. Thirty-eight colleges were represented, among them colleges in Canada and Italy, the total number of candidates being 378, of which 2 failed to appear, 1 candidate withdrew and 1 was expelled. The number of failures was 72, making a percentage of 19 per cent. Among the Pennsylvania schools the Women's College of Pennsylvania leads with a percentage of 100, there being 13 candidates and no failures. The University of Pennsylvania presented 71 candidates, of whom 5 failed, being 7 per cent. failures. Jefferson Medical College is third, 12 out of 93 applicants failing, making a percentage of 13. Medico-Chirurgical College had 57 candidates, of which number 15 failed, giving 26.33 percentage of failures. The West Penn Medical College was represented by 51 candidates, with 8 failures, showing a percentage of 15.7. The Temple Medical College had 1 candidate and no failures. The highest individual average was obtained by Martha Tracy, Women's Medical College, 91.07. The relative grand averages obtained by the candidates of each institution show the following results:

Women's Medical College of Pennsylvania	83.57
University of Pennsylvania	80.39
Temple College (one candidate)	79.50
Jefferson Medical College	77.54
Medico-Chirurgical College	77.46

Association News.

The American Medical Association and the 1905 Fair.

The American Medical Association is going to find itself in excellent company at Portland next year, remarks the *Medical Sentinel*. Stimulated by the brilliant success achieved by the International Congress of Arts and Science at St. Louis, the directors of the Lewis and Clark Fair have made the broad and statesmanlike decision to arrange for a series of literary, scientific and sociologic conferences or institutes, of which the great national meetings shall form a harmonious part. For instance, the meeting of the National Association of Charities and Corrections, which is to be held here in June, 1905, will be made the center for an institute or conference on sociologic and penologic subjects. Similarly, the Association of American Libraries, whose annual meeting has just been secured for Portland, will be utilized for a series of conferences on literary topics, attended by the distinguished men of letters and literary experience who will be drawn by the national association. It is also proposed to utilize the American Medical Association in the same manner, by following or preceding it with conferences on scientific subjects whose chief attractions will be furnished by the eminent physicians and scientists who will be in attendance at the sessions. The attempt, of course, will necessarily be on a far more modest scale than that of the Congress of Arts and Science at St. Louis, but it will form an admirable feature of the fair, and will show that Portland is fully capable of appreciating and utilizing in a marked degree not merely the commercial and economic advantages of her fair, and of the great national sessions which will meet at that time, but also the literary and scientific. The plan adopted will be somewhat similar to that carried out so successfully at St. Louis, only probably limiting itself to American leaders, instead of including those of the world. Prominent workers and thinkers in the lines of literature, sociology, education and science will be selected and formally invited by the president and directors of the fair to attend and address the conferences held on their respective subjects. . . . Coming as it does during vacation time of the greater part of them, there is little doubt that many of them will consider the invitation favorably. If this admirable move meets with the success which it deserves, and can be followed by the erection of a fireproof art building, so that the loan of valuable pictures can be secured and the building retained as a permanent art gallery for Oregon, it will give a stamp to the fair which, together with its beautiful and picturesque natural surroundings, will render it unique and peculiarly attractive, in spite of its comparatively modest size. The profession of Oregon, together with the board of the Portland City Library Association and the State Association of Charities and Corrections, can rightfully be proud of their share in making a start toward this feature of the fair and toward rendering its further development possible.

NEW MEMBERS.

New members for the month of November, 1904:

ARKANSAS.

Autrey, J. R., Columbus.
Atkinson, H. H., Fordyce.
Bennett, Alfred, Limestone.
Carmichael, A. L., Little Rock.
Dorr, J. P., Dota.
Floyd, J. H., Western Grove.
Huddleston, G. D., Lamar.
Lindsay, Jas. H., Bentonville.
Morgan, R. S., De Queen.
Mackey, E. W., McMurrain.
Poynor, Geo. V., Green Forest.
Rhea, B. S., Hope.
Thompson, J. S., Stephens.
Westerfield, J. S., Conway.
Webster, H. R., Texarkana.
Youmans, F. W., Lewisville.

CALIFORNIA.

Armstrong, Robt., Ramona.
Armstrong, J. M., Los Angeles.
Adams, L. P., Oakland.
Abbott, G. E., Pasadena.
Bogle, S. S., Santa Rosa.
Barney, H. N., Pt. Richmond.
Crosby, D., Fruitvale.
Curdts, C. E., Oakland.
Dunsmoor, J. M., Los Angeles.
Murphy, W. M., Los Angeles.
Bowers, T. M., Los Angeles.
de Vecchi, Pavlo, San Francisco.
Garceau, Alex. S., San Francisco.
Gibbs, Roy S., San Bernardino.
Hopkins, S. W., Lodi.
Ivancovich, Geo., Petaluma.
Jellinek, E. O., San Francisco.
Kier, Henry M., Woodland.
Leimbach, J. H., Isleton.
Lucas, Wm., Pt. Richmond.
McConnell, A. P., San Francisco.
Mehrmann, H. B., Oakland.
Morris, C. A., San Francisco.
Nichols, W. van D., Oceanside.
Peck, Geo. W., Sawtelle.
Pitts, E. H., Knob.
Renz, Carl, San Francisco.
Rumsey, W. W., Napa.
Simmons, S. E., Sacramento.
Smith, W. H., Los Angeles.
Sundberg, John C., Santa Cruz.
Titschworth, J. C., San Francisco.
Walrath, G. B., Los Angeles.

COLORADO.

Allen, E. D., Telluride.
Anderson, Andreas, Ault.
Cattermole, G. H., Boulder.
Cunningham, A. A., Denver.
Martin, E. E., Denver.
McFadzean, J., Del Norte.
South, John, Ouray.

CONNECTICUT.

Bassett, C. W., Sharon.
Bradeen, F. B., Essex.
Paine, R. C., Thompson.

DELAWARE.

Burr, W. H., Wilmington.
Cann, W. E., Kirkwood.
Haines, W. F., Seaford.
Stanton, J. G., Milford.

DISTRICT OF COLUMBIA.

Barker, W. H., Washington.
Ball, C. A., Washington.
Johnson, L. A., Washington.
Morhart, F. H., Washington.
Masterson, W. L., Washington.
Mink, O. J., U.S.N., Washington.
Richardson, J. J., Washington.
Stone, C. N., Washington.

FLORIDA.

Baltzell, N. A., Marianna.
Freeman, A. H., Starke.
Mitchell, W. G., St. Andrew.
Stukes, J. T., Lloyd.

GEORGIA.

Belt, L. J., Millen.
Burdett, J. R., Tennville.
Daves, J. M., Blue Ridge.
Doster, W. H., Rocky Ford.
Edge, J. T., Toccoa.
Elrod, J. O., Forsythe.
Ellis, L. M., Monticello.
Gammage, J. T., Pine View.
Jernigan, C. S., Sparta.
Jones, L. H., Atlanta.
Lamar, Lucius, Dawson.
Lunsford, J. F., Preston.
Mathews, A. B., Elberton.

Nippe, R. J., Carterville.
Patterson, F. D., Cuthbert.
Walls, J. R., Stone Mountain.

IDAHO.

Woodward, J. C., Payette.

ILLINOIS.

Aderhold, T. H., Zeigler.
Anker, I. C., Chicago.
Aldrich, D. W., Galesburg.
Betz, H. E., Chicago.
Butler, W. J., Chicago.
Brown, E. M., Chicago.
Butz, J. E. P., Potomac.
Brodley, W. O. R., Galesburg.
Browne, G. B., Watseka.
Butterman, W. F., Chicago.
Barat, S. S., Chicago.
Caldwell, C. P., Chicago.
Carter, W. A., Trenton.
Carson, G. T., Chatsworth.
Clement, F. M., Chicago.
Clampit, L. H., Jacksonville.
Cossairt, W. S., Potomac.
Coe, T. D., Kelthsburg.
Chenoweth, C., Decatur.
Caulkins, Nellie M., Manito.
Cooper, S. R. M., Rossville.
Daly, J. Nellis, Orangeville.
Day, H. M., Moweaqua.
De Fries, J. C., Thawville.
Doyle, L. M., Chicago.
Eldred, C. C., Joliet.
Emrick, M. E., Chicago.
English, G. F., Isabel.
Fisher, F. A., Chicago.
Gordon, J. H., Pocahontas.
Godfrey, F. H., Bloomington.
Gulick, J. M., Manteno.
Garm, R. H., Beardstown.
Hackett, Emma C., Chicago.
Huntington, E. O., Chicago.
Hubbard, C. M., Virginia.
Hancock, C. J., Greenup.
Hall, Omar O., Milford.
Houston, S. D., Polo.
Harvey, S. N., Chicago.
Holton, H. C., Sidell.
Iknayan, N. E. C., Charleston.
Jones, Thos. W., Cornell.
Jewett, D. L., Watseka.
Johnson, Levi O., Chicago.
Knox, T. B., Quincy.
Kenyon, E. L., Chicago.
Kelly, P. M., Litchfield.
Koontz, C. J., Beardstown.
Kuehn, Otto, Burksville.
Linder, A. W., Oak Park.
McCullum, S. J., Chicago.
Metcalf, F. H., Franklin.
Mitchell, L., Chicago.
McCleary, W. W., Chicago.
Near, J. S., Watseka.
Niergarth, W., Pekin.
Nowlen, J. A., Morrison.
Ogden, E. R., Chicago.
Ohls, H. G., Odell.
Parsons, W., Chicago.
Phifer, J. N., Shumway.
Potts, H. A., Jacksonville.
Quirk, J. P., Chicago.
Rosenthal, G. E., Quincy.
Rogers, B. S., Chicago.
Redshaw, B. F., Curran.
Redlich, H., Chicago.
Rockey, A. P., Assumption.
Roberts, H. B., Highland Park.
Rembe, C., Lincoln.
Ransmeier, R. E., Chicago.
Roehr, C. G., Chicago.
Salisbury, S. S., Tolono.
Soper, A. C., Chicago.
Sweeney, J. S., Chicago.
Soliss, J. P., Olney.
Sprague, T., Sheffield.
Steely, G. W., Louisville.
Smith, W. K., La Harpe.
Shurtz, R. E., Champaign.
Szwajkart, A., Chicago.
Sancerman, J. W., Winslow.
Seturnagel, G., Chicago.
Snader, L. G., Walnut.
Stamm, J. C., Chicago.
Stults, B. F., New Holland.
Taylor, W. S., Tallula.
Thorsgaard, K. L., Chicago.
Taylor, J. L., Libertyville.
Torrison, G. A., Chicago.
Todd, J. F., Chicago.
Tieken, T., Chicago.
Turner, J. W., Catlin.
Voorheis, C. H., Hutsonville.
Weis, J. W., Manchester.
Wood, W. C., Decatur.
Williams, A. W., Chicago.
Weatherford, F. A., Chicago.
Waggoner, L. T., Jerseyville.
Wild, T., Jr., Chicago.
Williams, W. B., Cissna Park.
Wright, E. A., Lake Forest.

INDIAN TERRITORY.

McMillan, C. W., Ada.

INDIANA.

Angel, C. K., Richmond.
Fleming, J. C., Elkhart.
Gifford, A. W., Tipton.
Knoefel, A. F., Floyd.
Hadley, J. W., Rossville.
Hoag, W. I., Indianapolis.
Hodges, F., Indianapolis.
Howard, J. L., West Baden.
Hollis, E. A., Hartford City.
Kercheval, D. F., Greensburg.
Lukemeyer, L. C., Huntingburg.
McBeth, W., Burnetts Creek.
Meyers J., Alton.
Mason, C. H., Tell City.
Morris, W. F., Fort Branch.
Nesbitt, W. S., La Fayette.
Nusbaum, C. E., Bremen.
Rowe, L. M., Indianapolis.
Rutherford, R. S., New Albany.
Schiller, F. W., Evansville.
Sherwood, E. T., Linton.
Stotlemeyer, C. L., Hagerstown.
Short, I. W., Elkhart.
Smoot, D. B., Washington.
Taylor, T. H., Evansville.
Teters, B. F., Middlebury.
van Sweringen, H., Fort Wayne.
Wilking, S. V., Roanoke.

IOWA.

Bilby, A. M., Galva.
Bare, E. A., Superior.
Bell, E. P., Pleasantville.
Brewer, L. S., Quimby.
Bassler, B. G., Harpers Ferry.
Brown, S. J., Panora.
Cross, G. B., Plainfield.
Carlisle, A. W., Manning.
Fitz, G. G., Spring Lake.
Gasson, J. H., Missouri Valley.
Grigsby, A. G., Humboldt.
Hine, C. W., Stanton.
Jewell, R. T., Urbana.
Kellogg, C. E., Northboro.
Lee, G. M., Thompson.
Matthews, R. J., Clarinda.
O'Brien, T. A., Emmetsburg.
Pray, G. L., Lake City.
Sinning, A., Bennett.
Shideler, A. B., Adair.
Thornton, J. W., U. S. Navy, Ackley.
Wall, T. M., Osceola.

KANSAS.

Beach, W. B., Clyde.
Fee, W. F., Meade.
McClintock, J. C., Topeka.
Murdock, S., Sabetha.
Robinson, P. W., Harris.
Rankin, E. C., McLaugh.
Scott, A. Breckenridge, Jetmore.

KENTUCKY.

Arnett, B. T., Anton.
Aud, C. Z., Cecilian.
Botts, J. W., Owenton.
Britt, W. T., Temple Hill.
Cowan, J. R., Danville.
Davis, J. S., Lovelaceville.
Harris, J. W., Richmond.
Hussey, J. H., Eddyville.
Long, W. H., Louisville.
Montgomery, E. W., Cecilia.
Neier, S. C., Bardstown.
Nusz, H. R., Cecilian.
Simmons, N. R., Lexington.
Smith, C. B., Millersburg.
Vaught, C. H., Richmond.
Wathen, J. R., Louisville.
Walker, F. M., Paint Lick.

LOUISIANA.

Calvert, E. G., West Monroe.
de Monsabert, A. M. G., Covington.
Daniel, J. M., Star Hill.
Gallion, Z. T., Natchitoches.
Hearn, M. M., Eros.
Keator, J. I., Bermuda.
Luckett, E. F., Loyd.
Martin, J. G., Lake Charles.
Mills, T. T., Jr., Zachary.
Perkins, T. J., Red Fish.
Parker, O. E., Slidell.
Schilling, C. A., Abbeville.
Sherman, J. C., Haynesville.
Tetraw, T. W., Larose.
Viallon, L. H., Bayou Goula.

MAINE.

Bowers, J. W., Portland.
Hagerthy, G. R., Bar Harbor.
Maddan, M. C., Old Town.
Sturtevant, J. S., Dixfield.

MARYLAND.

Adler, Harry, Baltimore.
Billingslea, J. H., Westminster.
Browne, J. N., Baltimore.
Briscoe, Philip, Mutual.
Carpenter, F. A., Baltimore.
Dickerson, J. D., Stockton.
Deets, J. E., Clarksburg.
Etienne, A. O., Berwyn.
Gaver, W. E., Mt. Airy.
Hall, Lee, Pocomoke City.
Keown, T. W., Baltimore.
Louderbaugh, F. B., Grantsville.
Lewis, W. L., Kensington.
Miller, W. P., Hagerstown.
Owings, E. R., Baltimore.
Peltekran, H. K., Sparrows Point.
Richardson, H., Baltimore.
Wilson, J. H., Fowblesburg.

MASSACHUSETTS.

Abbott, E. S., Waverley.
Ahearne, C. A., Salem.
Abbott, F. H., Taunton.
Bowditch, H. P., Boston.
Blair, A. W., Dorchester.
Blaisdell, G. W., Manchester.
Bigelow, E. H., Framingham.
Bancroft, E. E., Wellesley.
Craigin, G. A., Boston.
Cheney, F. E., Boston.
Cheever, David, Boston.
Cousens, N. W., Waltham.
Collins, R., Waltham.
Dutton, Richard, Wakefield.
Dennett, A. G., Lowell.
Donaldson, J. F., Salem.
Foster, E. E., New Bedford.
Foley, T. J., Worcester.
Golden, M. C., Taunton.
Goodridge, F. J., Cambridge.
Grouard, J. S., Nantucket.
Houghton, S. A., Brookline.
Hall, H. J., Marblehead.
Johnson, W. L., Uxbridge.
Lane, W. A., Milton.
Mayberry, E. N., So. Weymouth.
Mansur, L. W., Boston.
Marvell, M. W., Fall River.
Odiorne, W. B., Boston.
Richardson, W. S., Marlborough.
Robinson, T. J., Taunton.
Symonds, B. R., Salem.
Sheahan, J. M., Quincy.
Sanborn, F. J., Worcester.
Thompson, C. E., Gardner.
Tracy, E. A., S. Boston.
Urquhart, J. E., Ashfield.
Welch, J. F., Quincy.
White, J. C., Boston.
Williams, F. P., Boston.
West, G. L., Newton Center.
Wood, N. K., Somerville.
Wilkin, A. M., So. Framingham.
Woodward, J. R., Oxford.
Yoosuf, A. K., Worcester.

MICHIGAN.

Clark, C. A., Harbor Springs.
Landon, H. B., Bay City.
Lyon, Wm., Grass Lake.
Taylor, E. C., Jackson.
Traphagen, C. A., Armada.
Watson, W. C., Pontiac.
West, A. E., Eaton Rapids.
Wiley, H. H., Utica.
Zudzense, B. J., Sparta.

MINNESOTA.

Bartelson, O. L., Crookston.
Cirkler, A. A., Minneapolis.
Clement, J. B., Lester Prairie.
Cummings, J. C., St. Hilaire.
Clark, C. L., White Bear.
Danielson, K. A., Twin Valley.
Darrow, D. C., Moorhead.
Davis, H. S., Duluth.
Goudy, F. A., Harmony.
Haverka, T. W., Silver Lake.
Helmark, K. O. E., Hawley.
Jones, H. W., Minneapolis.
Mosse, F. R., Rochester.
Malchow, C. W., Minneapolis.
McCloud, C. N., St. Paul.
McGuigan, H., Mazeppa.
Newman, G. A., New London.
Spring, W. P., Minneapolis.
Schneider, H. A., Jordan.
Slippern, Halfdan, Fosston.
Soderlind, A., Minneapolis.
Vollmer, Josef, Hutchinson.
Weiser, F. K., Windom.
Warne, E. G., St. Paul.

MISSISSIPPI.

Anderson, J. B., Choat.
Bryan, G. S., Amory.
Basham, J. W., Hamilton.
Bridges, Chas., Phebe.
Bramlitt, A. C., Oxford.
Casey, J. P., Woodville.
Coleman, R. H., McLain.
Ewin, J. S., Vicksburg.
Eley, W. W., Merrill.
Gunter, J. T., Hollandale.
Hayes, C. LeG., Byhalia.
Hubbard, J. H., Cliftonville.
Hunter, Thos., Biloxi.
McKlonon, H. L., Carriere.
McLeod, N. A., Philipp.
Norman, C. R., D'Io.
Pierce, L. E., Friars Point.
Polk, L. L., Purvis.
Quin, R. A., Vicksburg.
Stanley, J. S., Brooksville.
Sexton, F. C., Laurel.
Simmons, J. T., Simmonsville.
Williams, J. E., Benoit.

MISSOURI.

Brosius, W. L., Gallatin.
Dickson, L. M., Revere.
Engman, M. E., St. Louis.
Montgomery, W. E., Kansas City.
McQuade, H. D., Kansas City.
Smith, J. W., Richmond.
Stockwell, B. E., St. Louis.
Shapleigh, J. B., St. Louis.
Wallis, F. C., Maryville.

MONTANA.

Dye, W. G., Deer Lodge.
Sweeney, G. T., Great Falls.

NEBRASKA.

Brown, I. C., Ft. Niobrara.
Bartholomew, W. J., Gothenburg.
Braucht, F. E., Omaha.
Dodson, P. F., Wilber.
Dunham, F. S., Cozad.
Kerley, Q. A., Randolph.
Kirkpatrick, C. F., Ashland.
Line, T. H., Marquette.
Purdon, Cyril, Lexington.
Talboy, W. R., Newcastle.
Trostler, L. S., Niobrara.

NEW JERSEY.

Carrigan, E. S., Pt. Pleasant.
Dowling, C. E., Sparta.
Forman, D. McL., Freehold.
Hecht, Max, West Hoboken.
Janeway, H. H., New Brunswick.
Kinmonth, W. R., Farmingdale.
Knight, S. R., Spring Lake.
Newton, Anne B., So. Orange.
Pierson, S., Morristown.
Roberts, D. E., Keyport.
Shaw, H. E., Long Branch.
Wallhauser, H. J. F., Newark.
Wilson, W. S., Newark.

NEW HAMPSHIRE.

Mitchell, A. W., Epping.
Sikossky, V. H., Salem.
Thompson, E. H., Hampton.
Walker, W. D., Portsmouth.

NEW MEXICO.

Massie, J. A., Santa Fe.

NEW YORK.

Adams, C. T., New York City.
Beaman, C. P., Ithaca.
Besemer, H. B., Ithaca.
Beach, B. S., New York City.
Campbell, C. E., Niagara Falls.
Douglass, C. E., Lowville.
Getman, W. T., Buffalo.
Lappeus, J. C. S., Binghamton.
Loughlon, E. J., Andover.
Phelps, H. E., Carthage.
Ross, D. L., Sonyea
Sprague, W. G., Barton.
Stella, Antonio, New York City.
Storer, F. B., Holley.
Sutton, J. E., Albion.
Tanner, J. S., New York City.

NORTH DAKOTA.

Bartley, W. M., Sheyenne.
Leslie, A. C., Hannaford.
Ramstad, N. O., Bismarck.
Rasmusson, Fred P., Kathryn.

OHIO.

Arndt, G. D., Mt. Vernon.
Bowen, C. F., Columbus.
Brown, G. N., Hebron.
Garuso, Giovanni, Cleveland.
Clark, A. T., Vinton.
Calvin, H. M., Salineville.
Dunlap, C. O., McArthur.
Greaves, J. L., Andrews.
Greiwe, J. E., Cincinnati.
Hiner, S. B., Lima.
Howell, W. E., Rio Grande.
Johnson, K. McC., Wooster.
Kattenhorn, H. F., Cincinnati.
Lamb, F. H., Glendale.
Lehman, B. F., Home City.
Mouser, A. H., Latty.
Mitchell, A. W., Georgetown.
Mundhenk, H. C., Brookville.
Minich, G. E., W. Farmingham.
Mills, C. D., Marysville.
Pope, Carlyle, Cleveland.
Parker, C. G., Gallipolis.
Pritchard, W. H., Gallipolis.
Ranly, John, Cincinnati.
Rhodes, O. A., Salem.
Stein, Geo. S., Columbus.
Symons, J. P., Rockford.
Sherwood, H. A., Warren.
Spurney, A. B., Cleveland.

Ward, J. W., Lytle.
Test, A. Le R., Portsmouth.

OKLAHOMA TERRITORY.

Day, C. R., Edmond.

OREGON.

Fulton, J. A., Astoria.

PENNSYLVANIA.

Burkholder, S. G., Rothsville.
Birney, D. B., Philadelphia.
Boom, H. H., Philadelphia.
Barton, A. A., Plains.
Confer, D. C., Duncansville.
Camp, C. D., Philadelphia.
Day, M. H., Donora.
Farrar, J. D., Philadelphia.
Hornet, Volney, Wyalusing.
Koser, Samuel B., Mountville.
Kemble, C. C., Tidioute.
Lewis, Norman, Blairsville.
Lichty, Bruce, Meyersdale.
Lazarus, W. W., Wilkesbarre.
McCleery, E. H., Kane.
McConnell, J. W., Philadelphia.
McAneny, J. B., Johnstown.
Painter, A. P. N., Kittanning.
Perry, G. E., Pittston.
Richards, W. L., Wilkesbarre.
Snively, J. L., Shady Grove.
Simpson, W. W., New Brighton.
Tobias, J. B., Wilkesbarre.
Trexler, J. S., Brodheadsville.
Willson, A. J., Scranton.

RHODE ISLAND.

Chapin, C. V., Providence.
Turner, E. L. D., Providence.

SOUTH CAROLINA.

Bell, J. W., Walhalla.
Claytor, Hubert, Hopkins.
Earle, C. B., Greenville.
Kneece, W. L., Baxter.
Townsend, J. F., Jr., Edisto Island.
Young, Wm. J., Fairfax.

SOUTH DAKOTA.

Robinson, De L. W., Pierre.
Goodrich, R. H., Chamberlain.
Zetlitz, Arne, Sioux Falls.
Zetlitz, Karspen, Sioux Falls.

TENNESSEE.

Acuff, S. D., Knoxville.
Brooks, H. G., Elkhorn.
Breeding, W. I., Taylors.
Berry, H. L., Memphis.
Crawford, H. F., Williston.
Dukes, N. M., Straw Plains.
Dice, J. B. F., Morristown.
Johnson, W. M., Bonair.
Johnson, J. T., Hermitage.
Kelly, E. T., Bessie.
Moses, J. M., Big Sandy.
Mulheron, G. G., Nut Bush.
Mitchell, W. W., Greenfield.
Myers, J. F., Elkton.
Officer, M. C., Carthage.
Rozzell, John H., Gibson.
Slayden, T. J., Allens Creek.
Yancey, T. B., Jr., Somerville.

TEXAS.

Brown, A. L., Upton.
Bryant, A. T., McKinney.
Baze, P. A., Mason.
Black, D. W., Rosebud.
Burger, W. M., Stephenville.
Burton, E. L., McKinney.
Clark, D. W., Montague.
Connor, A. C., Lexington.
Cain, S. G., Pendletonville.
Cloud, W. O., Samuel.
Davidson, W. L., Glenflora.
Devlin, Ella, Galveston.
Epperson, A. S., Cameron.
Fowler, W. Y., Valley Spring.
Fisher, F. K., Galveston.
Faulk, Lem., Reily Spring.
Fryars, T. V., Corsicana.
Gotcher, C. W., Garza.
Gilbert, J. C., Chisholm.
Howell, Asa, Burnet.
Horn, J. H., Shelbyville.
Harper, H. W., Austin.
Harrison, C. M., Cooper.
Hunter, J. E., Melissa.
Ledbetter, A. A., Halletsville.
Love, A. S., Ballinger.
Lee, A. G., Atlanta.
Livingston, J. W., Jonesville.
Leslie, A. C., Snyder.
McCormick, R., South Bosque.
Mackey, W. B., Longview.
Moseley, J. A. R., Jefferson.
Matlock, J. W., Frost.
Maxwell, F. A., Austin.
Magnenat, L. E., Amarillo.
Moore, A. B., Neyland.
Parsons, S. C., San Angelo.
Pearson, P. W., Celeste.
Perkins, A. T., Carthage.
Richardson, D. P., Henderson.
Raby, R. L., Gatesville.
Reed, Wm. K., Texarkana.
Southerland, W. S., Trenton.
Sansing, Campbell, Brookston.
Smith, J. Chas., Starrville.
Sturgis, W. E., Stephenville.
Swinney, B. A., Call.
Sutherland, W. A., Boaz.
Taylor, C. C., Cooper.
Upchurch, B. R., Dimple.
Weaver, H. C., Purves.
Wilson, H. N., Dye.
Williams, F. B., Kingsbury.
Womack, R. H., Copperas Cave.

UTAH.

Castleman, A. L., Bingham Canyon.
Richards, J. S., Salt Lake City.

VERMONT.

Andrews, C. G., Waterbury.
Burbank, L. W., Cabot.
Hazen, C. H., E. Corinth.
Sherwin, O. W., Woodstock.

VIRGINIA.

Holland, J. G., Holland.
Horton, M. C., Butterworth.
Henson, J. W., Richmond.
Riddick, S. A., Smithfield.
Schenck, P. S., Norfolk.
Wallace, W. H., Disputante.

WASHINGTON.

Biggs, D. E., Whatcom.
Hedges, F. R., Everett.
Howe, G. E., La Conner.
Love, L. L., Tacoma.
McCreery, C. R., Tacoma.
Olmsted, E. d. Vando, Spokane.
West, F. B., Mt. Vernon.

WEST VIRGINIA.

Ackermann, Gregory, Wheeling.
Brown, H. M., Union.
Burns, A. C., Huntington.
Campbell, H. J., Glenwood.
Casto, P. C., Spencer.
Farley, W. F., Holden.
Hankins, J. L., Century.
Henderson, O. J., Montgomery.
Highberger, W. T., Maysville.
Hughart, J. P., Cliff Top.
Roles, J. E., Union.
West, G. B., Sistersville.

WISCONSIN.

Bachman, C. F., Athens.
Baer, A. N., Milwaukee.
Burns, J. W., Oakfield.
Crommett, H. B., Amery.
Ford, W. B., Norwalk.
Foster, J. J., Milwaukee.
Goodrick, G. M., Clintonville.
Hallock, W. E., Juneau.
Huennekens, J. H., Milwaukee.
Kiffer, J. G., Milwaukee.
Lettenberger, J., Arcadia.
Lister, T., White Creek.
Little, W. D., Maidens Rock.
Miller, W. J., La Valle.
Suby, J. I., Stoughton.
Schneider, A., Milwaukee.
Trulson, L. M., Stoughton.
Wheeler, P. A., Oshkosh.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Dec. 3, 1904:

Mearns, E. A., surgeon, granted thirty days' sick leave, permission to apply for thirty days' extension.

Ashford, B. K., asst.-surgeon, granted thirty days' leave of absence about Dec. 20, 1904.

McMillan, Clemens W., contract surgeon, returned to Fort Mayer, Va., November 25 from leave of absence.

Oliver, Robert T., examining and supervising dental surgeon, arrived at San Francisco November 15 on the transport *Thomas*, and has been ordered to the U. S. Military Academy at West Point, N. Y., for duty.

Hess, John H., examining and supervising dental surgeon, ordered from West Point, N. Y., to San Francisco for Philippine service.

Thorp, Charles W., contract surgeon, ordered from Marcellus, Mich., to Fort Ethan Allen, Vt., for duty.

Brooks, John D., contract surgeon, granted leave of absence for one month and fifteen days.

Turner, Samuel S., contract surgeon, left Fort Columbia, Wash., November 23, on leave of absence for four months.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Nov. 3, 1904:

Iden, J. H., P. A. surgeon, detached from the Naval Hospital, Philadelphia, and ordered to the Naval Hospital, Newport, R. I.

Dunn, H. A., asst.-surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Naval Hospital, New York.

Alfred, A. R., surgeon, detached from the Navy Yard, Puget Sound, Wash., December 9, and ordered to the Naval Station, Cavite, P. I., reporting on the *Solace* December 14 for duty en route.

Carpenter, D. N., surgeon, detached from the Naval Hospital, New York, and ordered to duty in charge of the Naval Hospital, and to additional duty at the Navy Yard, Puget Sound, Wash.

Benton, F. L., P. A. surgeon, detached from the Naval Station, Cavite, P. I., and ordered home to await orders.

Manchester, J. D., asst. surgeon, detached from the *Columbia* and ordered to the *Marblehead*.

Fauntleroy, A. M., P. A. surgeon, detached from the *Lancaster* and ordered to the Navy Yard, Norfolk, Va., December 6, and thence to accompany a draft of men to the Navy Yard, Mare Island, Cal., and thence to the *Philadelphia*, with additional duty at the Navy Yard, Puget Sound, Wash.

Stepp, Jacob, asst.-surgeon, orders of November 5 modified; detached from Navy Yard, Boston, Mass., and ordered home to await orders.

De Valin, H., act. asst.-surgeon, ordered to the Naval Proving Grounds, Indian Head, Md.

November 30 (Orders issued by Commander-in-Chief Asiatic Fleet).

Bucher, W. H., surgeon, detached from Naval Station, Olongapo, P. I., and ordered to the *Cincinnati*.

Von Wedekind, L. L., surgeon, detached from the *Cincinnati* and ordered home.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the eight days ending Nov. 30, 1904:

Carter, H. R., surgeon, relieved from duty at Baltimore, Md.

McIntosh, W. P., surgeon, Bureau letter of Oct. 24, 1904, granting leave of absence for 25 days from Nov. 8, 1904, amended to read 18 days.

Grubbs, S. B., P. A. surgeon, granted leave of absence for 21 days from Decemb 18.

Collins, G. L., asst.-surgeon, granted leave of absence for 5 days from Nov. 16, 1904, under Paragraph 191 of the Regulations.

Hunter, W. R., A. A. surgeon, granted leave of absence for 14 days from November 25.

Safford, M. V., A. A. surgeon, granted leave of absence for 5 days from Nov. 25, 1904, under Paragraph 210 of the Regulations.

Tappan, J. W., A. A. surgeon, granted leave of absence for 23 days from Oct. 24, 1904, on account of sickness.

MacDonald, Jeanette, med. inspector, San Francisco Quarantine, granted leave of absence for 18 days from December 10.

Hanrath, F. R., pharmacist, granted leave of absence for 27 days from Oct. 25, 1904.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service during the week ended Dec. 2, 1904:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Nov. 13-26, 2 cases.
Illinois: Chicago, Nov. 20-26, 14 cases.
Louisiana: New Orleans, Nov. 20-26, 4 cases imported.
Michigan: Oct. 1-31, Bay City, 1 death; Calhoun County, 1 death; Nov. 20-26, Detroit, 1 case; at 62 places, present.
Missouri: St. Louis, Nov. 20-26, 16 cases, 3 deaths.
New Jersey: Camden, Nov. 20-26, 1 case.
New York: New York City, Nov. 20-26, 3 cases.
Ohio: Nov. 4-26, Cincinnati, 3 cases, 1 death; Nov. 20-26, Toledo: 3 cases.
Pennsylvania: Nov. 20-26, Johnstown, 3 cases; Nov. 19-25, Philadelphia, 2 cases; Nov. 20-26, Steelton, 2 cases; Williamsport, 1 case.
South Dakota: Sioux Falls, Nov. 13-19, 2 cases.
Utah: Seven localities not named, Oct. 1-31, 103 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Oct. 30-Nov. 12, 31 cases.
Brazil: Rio de Janeiro, Oct. 24-Nov. 6, 427 cases, 175 deaths.
Cuba: Sagua la Grande, Nov. 13-19, 1 case.
Ecuador: Guayaquil, Nov. 3-9, present.
France: Oct. 30-Nov. 5, Lyons, 5 cases; Nov. 6-12, Paris, 12 cases, 1 death.
Great Britain: Nov. 13-19, Bristol, 1 case; Oct. 30-Nov. 5, Dundee, 1 case; Nov. 7-19, Leeds, 3 cases, 1 death; Nov. 6-12, Manchester, 7 cases; New Castle on Tyne, 6 cases.
India: Bombay, Oct. 26-Nov. 1, 1 case.
Italy: Nov. 11-17, Catania, 4 deaths; Oct. 23-29, Palermo, 6 cases, 1 death.

Russia: Oct. 23-Nov. 5, Moscow, 8 cases, 3 deaths; St. Petersburg, 11 cases, 4 deaths; Oct. 2-15, Warsaw, 24 deaths.
Spain: Barcelona, Nov. 1-10, 13 deaths.
Turkey: Oct. 29-Nov. 5, Beirut, present; Nov. 7-13, Constantinople, 15 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Oct. 31-Nov. 6, 2 cases, 2 deaths.
Mexico: Nov. 13-19, Coatzacoalcos, 1 case, 4 deaths; Merida, 1 case, 1 death; Texistepec, 30 cases, 3 deaths; Vera Cruz, 3 cases, 1 death.
Panama: Colon, Nov. 20, 1 case.
Venezuela: Laguaira, Nov. 12, present.

CHOLERA.

India: Oct. 26-Nov. 1, Bombay, 1 death; Oct. 23-29, Calcutta, 8 deaths.
Russian Empire: Oct. 19-25, Baku, 26 cases, 9 deaths; Oct. 17-24, Kilsit-Arwat, 1 case; Merv, 1 case; Serachs, 1 case.

PLAGUE.

Brazil: Rio de Janeiro, Oct. 23-Nov. 6, 62 cases, 28 deaths.
British South Africa: Durban, Oct. 1, 1 case.
Egypt: Alexandria, Oct. 22-28, 1 death.
Formosa: Taihoku, Sept. 3-10, 1 case, 1 death.
India: Oct. 26-Nov. 1, Bombay, 60 deaths; Oct. 23-29, Calcutta, 4 deaths; Oct. 17-23, Karachi, 9 cases, 8 deaths.

Medical Organization.

Delaware.

KENT COUNTY MEDICAL SOCIETY.—Drs. George W. Marshall, Milford; Ezekiel W. Cooper, Camden, and other physicians met at Dover, November 17, and organized this society on the standard plan. Dr. James Wilson was elected president and Dr. L. August H. Bishop, secretary and treasurer, both of Dover.

Indiana.

FAYETTE COUNTY MEDICAL SOCIETY.—With the aid of Dr. David W. Stevenson, Richmond, councilor for the Sixth District, this society was organized at Connersville, October 13, on the standard plan, the following officers being elected: Dr. George F. Van Pelt, president; Dr. Frank J. Spilman, vice-president, and Dr. E. Everett Hamilton, secretary, all of Connersville.

THIRTEENTH DISTRICT MEDICAL SOCIETY.—Physicians of this councilor district met at South Bend, October 20. Dr. Charles A. Daugherty, councilor for the district, presided, Dr. J. N. McCormack, national organizer, made an address, and the society organized with the following officers: Dr. G. W. Thompson, Winamac, president; Dr. Irvin J. Becknell, Goshen, vice-president, and Dr. John B. Berteling, South Bend, secretary.

Iowa.

SEVENTH DISTRICT MEDICAL SOCIETY.—At the first annual meeting of this society held in Des Moines, October 27, organization was perfected and the following officers were elected: Dr. Edward E. Dorr, Des Moines, president; the presidents of the component county societies, vice-president, and Dr. C. A. Ayres, Des Moines, secretary and treasurer.

Kansas.

ANDERSON COUNTY MEDICAL SOCIETY.—The physicians of the county met at Garnett November 30, to discuss the advisability of reorganizing their county society, which has had only a nominal existence. After the plan of work had been explained by Dr. J. N. McCormack and thoroughly discussed, the standard constitution and by-laws were adopted and the present officers continued until the annual meeting to be held in December. These officers are: Dr. George Schoonover, Garnett, president; Dr. David O. Taylor, Greeley, vice-president; Dr. John R. Scott, Garnett, secretary, and Dr. J. B. Jones, Garnett, treasurer.

BOURBON COUNTY MEDICAL SOCIETY.—The physicians of the county met at Fort Scott December 1, with a representative attendance from several adjoining counties. After an explanation of the plan and purposes of organization by Dr. J. N. McCormack and a free discussion, the standard constitution and by-laws were adopted and the following officers were elected: President, Dr. Millard F. Jarrett; vice-president, Dr. Robert Aikman; secretary and treasurer, Dr. Joseph B. Carver; censors, Drs. Charles A. Van Velzer, E. P. Payne and William S. McDonald, all of Fort Scott. There are over sixty physicians in this county. Weekly meetings will be held and the prospects for an excellent society are promising.

SEDGWICK COUNTY MEDICAL SOCIETY.—The physicians of the county met at Wichita November 29, and after a full discussion of the matter, adopted the standard constitution and by-laws, decided to hold weekly meetings and elected the following officers: President, Dr. J. Franklin Gsell; vice-president, Dr. James W. Cave; secretary, Dr. H. S. Hickok; treasurer, Dr. John C. Brown; censors, Drs. John D. Clark, George C. Purdue and James W. Kirkwood, all of Wichita. The physicians of Wichita have been organized for some years as the Academy of Medicine, and this body has met weekly and done much valuable work. The question of merging the two bodies was discussed and left open for future consideration

FORD COUNTY MEDICAL SOCIETY.—The physicians of Ford county met at Dodge City November 26, and after addresses by Drs. Horace G. Welch of Hutchison and J. N. McCormack of Bowling Green organized a county society, adopting the standard constitution and by-laws. Dr. W. H. Graves was elected president; Dr. Herbert Whitworth, vice-president; Dr. Claude E. McCarty, secretary; Dr. Harvey W. Garrett, treasurer, and Drs. Charles A. Milton, James Hawkins and Thomas L. McCarty, censors, all of Dodge City.

RENO COUNTY MEDICAL SOCIETY.—The physicians of Reno County met at Hutchison, November 25, and after explanations by Drs. Oliver J. Furst, Peabody, councilor for the district, and J. N. McCormack, chairman of the Committee on Organization, formed a new county society on the standard plan. Dr. Hunter J. Duvall, Hutchison, was elected president; Dr. William H. Bauer, Sylvia, vice-president; Dr. George R. Gage, Hutchison, secretary; Dr. Cornelius A. Mann, Hutchison, treasurer, and Drs. Horace G. Welch, Clemens Klippel and Cornelius A. Mann, all of Hutchison, censors.

Maryland.

ALLEGANY COUNTY MEDICAL SOCIETY.—This society was organized at Cumberland October 6, on the standard plan, with the following officers: Dr. J. Jones Wilson, Cumberland, president; Drs. Arthur H. Hawkins, Cumberland, and A. G. Smith, Midland, vice-presidents; Dr. Edgar T. Duke, Cumberland, secretary, and Dr. John A. Doerner, Cumberland, treasurer.

WASHINGTON COUNTY MEDICAL SOCIETY.—At a recent meeting of this society the following officers were elected: Dr. S. Seibert Davis, Boonsboro, president; Dr. William P. Miller, Hagerstown, vice-president; Dr. Victor D. Miller, Jr., Hagerstown, secretary; Dr. Hamilton K. Derr, Hagerstown, treasurer; Drs. J. McPherson Scott, Hagerstown; V. Milton Reichard, Fairplay, and C. D. R. Miller, State Line, censors, and Dr. James W. Humrichouse, Hagerstown, delegate to the Medical and Chirurgical Faculty of Maryland. The society approved the adoption of the constitution as suggested by the American Medical Association.

New Hampshire.

COOS COUNTY MEDICAL SOCIETY.—This society was organized at Whitefield in October, with the following officers: Dr. Ezra Mitchell, Lancaster, president; Dr. John D. Holt, Berlin, vice-president; Dr. Frank W. Evans, Coos, secretary and treasurer; Drs. Edwin E. Jones, Colebrook, Louis B. Marcou, Berlin, and Richard E. Wilder, Whitefield, censors, and Drs. Charles C. O'Brien, Groveton, and William H. Leith, Lancaster, delegates to the state society.

Ohio.

ROSS COUNTY MEDICAL SOCIETY.—Physicians of the county met Drs. Theodore W. Rankin, Columbus, and Horace Bonner, Dayton, at Chillicothe, October 5, and organized a county society on the standard plan, with the following officers: President, Dr. Jefferson B. Scearce; vice-president, Dr. F. T. Marr; treasurer, Dr. Raymond E. Bower; secretary, Dr. Mary Peatter, and censors, Drs. Josephine Riley, Joseph M. Hanley and Harry R. Brown.

SECOND DISTRICT MEDICAL SOCIETY.—The first annual meeting of the society was held in Dayton, November 17. Dr. Horace Bonner, Dayton, councilor for the district, presided. The temporary organization was made permanent, and Dr. David R. Silver, Sidney was elected chairman, and Dr. Frank P. Anzinger, Springfield, secretary. The society adopted the following resolution:

Resolved, That the society uphold the character of Dr. Ohlmacher, the superintendent of the Gallipolis state hospital, and condemn the political machine tending to put him out of office.

South Carolina.

AIKEN COUNTY MEDICAL SOCIETY.—At a meeting held in Aiken, two weeks ago, a county society was organized, with the following officers: Dr. Benjamin F. Wyman, president; Dr. Theodore G. Croft, vice-president, and Dr. W. C. R. Turnbull, secretary and treasurer, all of Aiken.

Wisconsin.

FIRST DISTRICT MEDICAL SOCIETY.—This society was organized at Burlington, November 17, with the following officers: Dr. James C. Reynolds, Lake Geneva, president; Drs. Walter S. Haven, Racine, Benjamin J. Bill, Genoa Junction, and J. L. Cleary, Kenosha, vice-presidents, and Dr. Joseph P. McMahon, Union Grove, secretary.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
Southern Surgical and Gynecological Association, Birmingham, Ala., December 13-15.
Western Surgical and Gynecological Association, Milwaukee, Wis., December 28 29.
American Public Health Association, Havana, Cuba, Jan. 9-13, 1905.
Pan-American Medical Congress, Panama, Jan. 2-6, 1905.

CLEVELAND ACADEMY OF MEDICINE.

Meeting of the Section of Experimental Medicine, held Oct. 14, 1904.

Dr. Spenzer in the Chair.

Total Nitrogen, Ammonia and Urea in the Urine.

Dr. H. D. Haskins read a paper on the value of various methods of estimating total nitrogen, ammonia and urea in the urine. He stated that the accuracy of the Kjehldahl method of nitrogen estimation was corroborated by experimental evidence. He mentioned the Schlosing, Wurster and modified Wurster methods, but did not consider them as of the same value. He recommended Folin's method in preference to these, on account of its greater simplicity, combined with equal accuracy. He considered in detail all the important methods of urea estimation. He especially emphasized the inaccuracy of the hypobromite method, and pointed out that the only time when the finding is of any clinical value is when the quantity present is small in amount. The method estimates an uncertain amount of the total nitrogen rather than the nitrogen of the urea alone. He described the Pflüger-Schöndorff, Mörner-Sjoqvist and the Folin methods and the amount of accuracy obtainable from each. None of these four accurate methods can be well carried out by the clinician, but the Mörner-Sjoqvist he considered as the least difficult, and the most convenient of any of them.

Meeting of the Clinical and Pathological Section, held Nov. 4, 1904.

Dr. Hamann in the Chair.

Presentation of Clinical Cases.

ACQUIRED SYPHILIS IN A BOY.

DR. WILLIAM OSBORN presented a case of primary and secondary syphilis in a boy of 8. The lesions consisted of a primary sore on the prepuce, with swollen inguinal glands, unilateral condylomata of the anus, mucous patches in the mouth, and a fine macular eruption. The source of infection was genital abuse of various types. The usual antisyphilitic treatment was being carried on.

SACCULAR ANEURISM.

DR. BACON related the history of a case of very early aneurism of the saccular type, associated with another small aneurism of the mycotic or infectious type. The patient went to the hospital with symptoms of pneumonia and died soon after. At autopsy there were found, besides the pneumonia, an acute septic endocarditis, grafted on a chronic process, with acute pericarditis and some patches of meningitis probably secondary, besides the usual changes in the organs denoting an acute infectious process. Just above one of the cusps of the aortic valve was a small depression, about the size of a lima bean, in which the aorta was markedly sclerotic, and which was apparently the beginning of a saccular aneurism seen at an unusually early stage. One of the other cusps was entirely perforated, in spite of which there had been no physical signs of valvular lesion, and at its base was another small sacculation, due to weakening of the aortic wall by the direct extension of the inflammatory process, the so-called mycotic form of aneurism. The chief point of interest was the small size of the aneurism, only seen when as in this case the patient dies of some other trouble.

RECURRENT HEMOPTYSIS.

DR. THOMAS WOOD CLARK read a paper on recurrent hemoptysis in a case of aortic aneurism, with extensive involvement of the right lung and with rupture into the pleura. In the case mentioned there were 16 hemorrhages, varying from 2 to 36 ounces, and extending over a period of nine weeks, a total of 225 ounces in all. Early diagnosis of aneurism was made, but the patient would not submit to the Tufnell treatment and refused to keep quiet. The hemorrhage always followed some sudden exertion and consisted of almost pure blood, with very little mucus. Hemoglobin estimations showed a progressive secondary anemia. On the sixty-fourth day after admission, after a sudden effort, the patient became very white, declared he was dying and only lived a few minutes. At the autopsy a very unusual condition was found. There was marked general arteriosclerosis, but the organs showed no particular changes other than passive congestion. The heart was moderately hypertrophied, and just above the aortic valve was a slit 4 cm. long, opening into a large sacculated aneurism. This aneurism involved the entire upper lobe of the right lung, the line of demarcation between the sac and the lung tissue being macroscopically indistinguishable. The main sac was filled with a dense laminated clot. Probes could be passed directly from the bronchi into the clot without having to penetrate any sac wall. On the outside of the lung, about in the axillary line, was a fresh rupture 6 cm. long, opening into the pleura, which was found completely filled with fresh blood and clots, the lower lobe of the lung being markedly compressed. The earlier hemorrhages had evidently taken place through the clot into the bronchi, and death occurred from bleeding into the pleura. Dr. Clark then gave a résumé of the few similar cases of repeated hemoptysis in aneurism, in none of which was there such a number of hemorrhages at such short intervals.

Operations in Impassable Strictures and in Hypospadias.

DR. N. STONE SCOTT reported several cases. The first case reported was that of a man of 22, with hypospadias extending to the scrotum, which was itself not cleft. The man had submitted to several operations and was willing to try again, as he wished to marry. A series of operations was performed in this case, in two main groups, the first tending to straightening the penis, the others to closing in a new urethra. On account of the tearing out of the stitches, for various reasons, five separate operations were necessary before a new urethra was formed, and two more before the urethral fistula could be finally closed and put into service. The results were, however, quite satisfactory, and the patient's marriage was followed in due course of time by the birth of a child.

The other cases reported were of impassable strictures, some of them infectious in origin, and others traumatic. It was necessary to dissect out the scar tissue and to form a new urethra. Diagrams were shown indicating the impossibility, in many cases, of passing a sound, as the channel does not necessarily follow a straight line, sometimes even forming a right angle, making the passage of even a filiform bougie impracticable.

DISCUSSION.

DR. W. E. LOWER noted the necessity in these last cases of absolute hemostasis, which he obtains by means of a stream of water flowing constantly over the field of operation. He also noted the advisability of beginning high up, as it is easier to find the urethra in this way.

DR. BUNTS spoke of the extreme antiquity of the operation for hypospadias, recalling that Charles XI of France was operated on with apparently good results. He also referred to Mayo's operation, in which a flap is taken from the dorsum, made into a tube and passed through an artificial opening in the penis to form the new urethra.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held in San Francisco, Oct. 25, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Posture in the Treatment of Disease.

DR. C. M. COOPER stated that patients frequently assume attitudes which are more or less beneficial to themselves; as, for example, when an inflamed joint is immobilized by reflex muscular contraction, or when by a more volitional process, the chin-in-hand attitude is assumed in diseases of the cervical vertebræ. In other cases an ignorance as to the nature of his disease does not permit the patient to reason out what would be the most advantageous posture to assume, and in these cases the physician should prescribe the attitude.

The value of a low position of the head in the treatment of the syncope caused by cerebral anemia is universally recognized. It also seems logical and has apparently been beneficial, to employ a similar inverted posture in treating more chronic conditions of cerebral anemia; e. g., the anemic insomnia of aortic regurgitation. Conversely, a relatively erect position is advantageous in the treatment of congestive headaches such as may occur in the early stages of cerebral inflammations, and in the treatment of the sleeplessness due to cerebral hyperemia. Possibly the nocturnal headaches of many syphilitics and the nocturnal attacks of epilepsy are in some measure due to the relative congestion of the brain occasioned by the reclining posture. Possibly, also, we may be able to influence the spread of inflammatory processes in the spinal meninges and in the spinal cord by elevating the foot or the head of the patient and so in this manner we may be able to protect important structures from involvement in the disease.

The erect sitting posture assumed by patients with severe cardiac affections is probably of direct advantage to them and it should be tried more often in the earlier stages of the disease. Frequently it can be shown that the heart rate becomes slower in this position. The tracheal symptoms of aortic aneurism may be relieved by having the patient lie face downward with a pillow under his chest below the seat of the aneurism. In pleurisy and pneumonia, it is possible that the erect posture would tend to prevent the spread of the disease upward. The nocturnal frequency of gallstone colics may be due to the fact that when the patient is lying on his back the mouth of the gall bladder is at a lower level than is the fundus. Attacks of gallstone colic have been aborted by having the patient assume the knee-chest position, thus favoring the falling back of stones from the neck to the fundus of the gall bladder. Possibly also renal colic could be thus aborted if the foot of the bed were elevated and the patient lay on the affected side. A right lateral position in appendicitis would tend to localize the inflammatory process to a comparatively favorable locality. A right lateral inverted posture should be tried in the treatment of dilatation of the stomach, for this posture would aid in emptying the organ.

DISCUSSION.

DR. EMMETT RIXFORD referred to a case described by Macewen where the patient said that he could not lie down. On being induced to do so by the physician, he died suddenly, and at autopsy a clot was found in the brain, which had slipped down in the recumbent posture and caused death. The relief afforded by the sitting posture in cardiac disease is probably due to the fact that when the patient lies down the abdominal contents press on the overworked heart. In the Trendelenburg position it is of advantage to place a pillow under the shoulders in order to render the abdominal wall less tense. When the patient with a dilated stomach is told to lie on his right side for the purposes of better drainage, we should remember that unless the contents of the stomach are heavier than are other abdominal structures they will not sink to the pylorus, but will be pressed up by these other structures.

DR. HARRY M. SHERMAN questioned the advantage of Dr. Rixford's modification of the Trendelenburg position, because it would tend to interfere with respiration. The hand-in-chin position assumed by patients with cervical caries can hardly be called a voluntary position, for the patients can not reason out its mechanical advantages. He would be inclined to regard it as a reflex.

DR. CARPENTER stated that he had seen patients with hydronephrosis who suffered considerable pain in the back when lying down, but in whom this pain could be relieved by elevating the head of the bed, so as to favor drainage of the sac.

DR. C. M. COOPER said that the Trendelenburg position was not without danger and had caused death. The characteristic position assumed by patients with cervical caries is not a reflex, but is voluntary. The patient himself has learned that this position relieves his pain, even though he does not understand why it should do so. When the individual with a dilated stomach lies on his right side the fluid in the stomach comes in contact with the pyloric region and so causes reflex peristaltic movements which tend to empty the stomach.

Diagnosis and Treatment of Fractures of the Neck of the Femur.

DR. H. M. SHERMAN reported several cases of injuries about the hip which illustrate the importance of a special symptom, viz., the inability of the patient to lift his foot off the table when lying on his back. In two of these cases this was almost the only important symptom pointing to a fracture of the neck of the femur. On account of the absence of other symptoms, however, comparatively little attention was paid to it and subsequent events showed that both patients had had impacted fractures of the neck of the femur. In a third case of hip injury the patient could lift his foot from the table and the *x*-ray showed no fracture. Great care should be taken in all cases not to do violence to a femur which is the seat of a supposed fracture, for an impacted fracture may easily be converted into an unimpacted one by manipulation. For this reason an examination under an anesthetic should never be made. In the operative treatment of ununited fractures of the neck of the femur it is extremely difficult to drive a nail into the head and to obtain a good alignment. Furthermore, as a rule, only fibrous union is obtained. In two children who had been operated on it was found that the shortening of the leg gradually increased and a coxa vara developed, probably on account of a fibrous union of the fragments.

DISCUSSION.

DR. EMMETT RIXFORD stated that, on account of the great leverage involved, the effort to lift the foot off the table puts considerable strain on the fragments. For this reason he would hesitate to use the test described by Dr. Sherman. A symptom of considerable importance in fractures of the neck of the femur is the relaxation of the fascia lata above the great trochanter. He has operated on one case of ununited fracture of the neck and obtained a good result.

DR. SAMUEL HUNKIN, in reply to Dr. Rixford, stated that if the patient had a fracture of the neck, he would not attempt to lift the heel off the table, so that there is no danger in the test. He believes that the test is a good one. Other important diagnostic points are the local tenderness and the pain on slight rocking movement of the joint. The shortening of the extremity which occurred in the cases of the children operated on was perhaps caused by an injury to the epiphyseal line.

DR. H. M. SHERMAN stated that early operation in cases of fracture of the neck of the femur is not justified. The fracture is not usually at the epiphyseal line so that it should not interfere with the growth of the bone.

Travel Notes.

XIX.

THE CITY OF JAIPUR, INDIA, AND MAYO HOSPITAL.

NICHOLAS SENN, M.D.
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BRINDISI, ITALY, Sept. 30, 1904.

Jaipur is one of the largest, most important and interesting inland cities of India. It is the local seat of government

of the state of Jaipur and the residence of the maharajah, whose palace, exhaustive gardens, crocodile tanks, state and private carriages and elephant stables are objects of growing interest to every visitor.

The city proper is enclosed by towering walls and the two gates are closed and locked regularly at 10 o'clock every evening, in the same manner as was done 300 years ago, when they were first opened during the feudal times, to serve as a safeguard against nightly invasions. This old custom continues with great punctuality, although the protection for safety of life and property has become superfluous since the strong arm of the English government has done away with internal strife and has made India secure against invasion from without.

Jaipur has taken the place of the ancient capital city Amer, a mountain stronghold seven miles distant, once a great and prosperous city, now deserted and its great palace and former mansions and ramparts crumbling into dust. A great fort on the highest mountain ridge overlooking the ancient palace and depopulated city is kept in good repair and is occupied by a regiment of native troops. Looking at this great city, now in ruins, centuries ago the power and pride of this part of India, the safe refuge of a large and prosperous population, the seat

Fig. 1.—Native of Jaipur.

of a gay and powerful nobility, we are strongly reminded of the significance of:

> "The fashions of human affairs are short and changeable and fortune never remains long indulgent to men."—Quintus Curtius Rufus.

A few coolies and numbers of monkeys make up the scanty population of the abandoned capital city which centuries ago was the seat of political power, fashion, wealth and general prosperity.

In the meantime its rival, Jaipur, has become old. The present population of Jaipur is about 85,000; the principal streets are wide, lined by houses three and four stories high, with walls covered with plaster, painted a light uniform roseate hue, ornamented with rude artistic designs in white, representing plants and flowers. This is the place to see the real types of natives (Fig. 1), their habits and customs unaffected by time and European influence.

Agriculture, gardening and the different industries are conducted in the same manner now as they were a thousand and more years ago. The elephant, camel, donkey and buffalo are the beasts of burden now as then, and are trained and used in the same manner as under the masters of centuries ago. The little open shops and corners, where the artisans do their work with the crudest kind of tools, are the same now as they were when first opened for business, hundreds of generations ago.

This is the place to see Hindu feasts and processions in their original form (Fig. 2). The Hindu, above any other people, is proud of his race, his ancestry and ancient civilization, and is deeply, almost hopelessly, rooted in the teachings and faith of his Brahmin religion. Hindu life, habits and customs as seen in Jaipur illustrate the meaning of:

Fig. 2.—Hindu dancing girl.

> "So difficult is it to bring people to approve of any alteration of ancient customs; they are always naturally disposed to adhere to old practices unless experience evidently proves their inexpediency."—Livius.

The greatest trouble with the Hindu is to convince him of the inexpediency of anything inaugurated by his ancestors, as he is a firm believer in their infallibility concerning happiness in life and an ascending scale of blessedness in the hereafter.

Jaipur represents the center of one of the most fertile and prosperous agricultural states in India. Indications of considerable local wealth in the city are not lacking. The reigning maharajah is very popular and is well and favorably known for his many unostentatious works of charity. It was this prince who, during the last long famine, kept hundreds of his poor subjects from starving by his liberal contributions of food and money. He is the friend of the poor and takes a paternal interest in the Mayo Hospital.

Medical affairs in the city and state of Jaipur are managed

by P. Durrel Pank, Lieutenant Colonel, I.M.S. His last official report[1] contains many interesting facts, and from it I have gleaned much valuable information.

In speaking of the temperature and rainfall he says: "The mean temperature was 77.7 F., or 0.9 F. above the average; the maximum temperature was 115.20 F., on June 3 and 12, and the minimum 35 F., on December 27; the amplitude of yearly fluctuation was 80.2 F., and the greatest on any day was 41.4 F., on February 9. The rainfall registered at the Jaipur Observatory was 23.39 inches, or 1.07 below the yearly average."

The vital statistics show that during the year 1903 the number of births recorded was 4,436, against 6,641 deaths, the death rate being much larger than the birth rate. Infantile mortality is responsible for the large death rate, as the number of deaths among children under one and five years, during the same time reached the astonishing figure of 3,863. The three months most fatal to child life were: June, 531; October, 461, and September, 459. During the year there were 58 deaths from smallpox, 244 from measles, 7 from cholera and 7 from imported plague in Jaipur city.

In reference to the steps taken to check the cholera epidemic the report states: "The usual necessary precautions were taken in every village and city where the outbreak of cholera took place—wells were disinfected with permanganate of potassium; insanitary conditions in the villages and towns removed, so far as possible, and hospital assistants with proper medicines were dispatched to treat all cases."

Malarial fevers were prevalent in many districts in the autumn and 236 packets, containing 100 doses of quinin in each, were supplied to officials of the government for free distribution to the people; there was also a free distribution of quinin and other cinchona alkaloids from each of the district dispensaries.

The mortality from malaria was low, owing undoubtedly to the liberal distribution of quinin free of cost through the different branches of the government service. Free vaccination is performed on a very large scale, 84,019 cases during the year covered by the report. A very interesting account is given of the experience of the medical officers in carrying out the prophylactic serum treatment (Haffkine) during the epidemic of bubonic plague, and the prejudice of the people against this measure was only overcome by the noble example of one of their chiefs.

"In regard to inoculation, the adoption of this in the early days of the epidemic was most difficult and at one time apparently hopeless; but patience, tact and moral suasion at last overcame the dense ignorance and stupid prejudices of the villagers. The last argument, and that which really compelled them to give way in the end, was the fact that their nazim stripped and bared his body before their eyes in order to be inoculated as an object lesson. This they would not allow, and rather than that he should be a scapegoat in their behalf, a few consented. The plunge was made and all followed suit; before many had been inoculated others clamored to be inoculated at once as they could not afford to run the risk of delay in waiting to be done in their proper order and turn, and protested against others being inoculated before themselves. When once they saw and believed that no harm and little inconvenience followed the inoculation, they implicitly believed in it and attributed to it many virtues which it does not possess nor lay claim to." What a striking illustration of

> "Men are but children of a larger growth."—
> Dryden.

MAYO HOSPITAL.

The Mayo Hospital, so called in memory of a former governor of this part of India, is the government general hospital of Jaipur and is the largest of the twenty-six hospitals and dispensaries in the state of Jaipur. It has a superb location, the buildings and grounds facing the beautiful botanical garden and the fine statue of the governor whose name it commemorates. The main building is a solid two-story stone building, and there are a number of one-story pavilions of the same material, connected by roofed cement walks with the central building. The hospital has accommodations for 160 patients, all natives, cared for at government expense. The wards are capacious, well lighted and ventilated, but the furniture is scanty and of the simplest kind. The operating room is small and the appliances for asepsis of a somewhat primitive character. Lieut.-Col. Pank is at the head of the medical staff, assisted by several assistant surgeons of the subordinate Indian Medical Service.

The worst feature of this hospital is a lack of an adequate number of trained female nurses. Most of the nursing is done by male and female ward attendants, who receive at best only the most elementary training and, consequently, can not be relied on in the operating room or in the care of grave surgical and medical cases. A training school for female nurses is a desideratum that should be met without any further loss of time, as it would be the means of greatly facilitating the work of the medical officers and would secure more efficient care for the patients afflicted with grave disease and for those who are subjected to operative treatment. The records of the hospital speak well for the surgical skill of Lieut.-Col. Pank, who does most of the operative work, which includes general surgery, gynecology and ophthalmology. Considering the difficulties he has to contend with, his results compare well with those of other surgeons in India who have better assistance at their disposal and whose patients are under the care of competent trained female nurses.

During the year 1903, 24,648 out-patients and 2,124 in-patients, total 26,772, were treated at the Mayo Hospital. During the same year 696 major and 664 minor, total 1,360, operations were performed; of these 21 per cent. were on women. Five ovarian cysts were removed by ovariotomy without a death—two of these cysts were very large and in three cases the adhesions were extensive. Ten successful operations for tuberculosis of the lymphatic glands in the neck, axilla or groin were performed and were in many cases very extensive, entailing long and careful dissections. Thirty-seven operations on bones were made without mortality. Among these were two cases in which the whole lower jaw was removed on account of an enormous epulis; and in three cases partial excision of this bone, in one case for sarcoma and in two for necrosis. The right upper maxilla with malar and nasal bones, was removed for sarcoma. No death in ten amputations of all kinds. Operations on the eye constitute the bulk of the operative cases. Lieut.-Col. Pank has had an enormous experience in operations for cataract.

During the year mentioned above 239 cataract operations by von Graefe's method were performed, 219 by Lieut.-Col. Pank and 20 by Assistant-Surgeon Daljaag Singh. These operations were performed on 199 persons; 224 were recorded as able to see well, 4 discharged otherwise and 11 were under treatment at the end of the year. Artificial pupils for corneal opacity were made in 5 cases, in 3 persons, and all were useful in increasing vision. Iridectomy for glaucoma was performed in 14 cases and the disorganized eyeball was extirpated in 14 cases. Eight operations for the radical cure of inguinal hernia by Bassini's method were successful. In four of these cases the hernia was congenital.

The rectum and anus were operated on 31 times with one death (anal fistula); 14 times for hemorrhoids by ligature and 8 times for anal fistula. Vesical calculi were removed in 43 cases by litholapaxy with no death; in 3 cases by lateral lithotomy with one death, and in 4 cases by perineal lithotomy with no death. All cases treated by litholapaxy made excellent and speedy recoveries. The largest stone removed by this operation weighed 935 grains and the average hospital life for each case was 4.18 days. The 3 cases operated on by lithotomy were unfit for any other operation, and the patient who died after operation was a man worn out by the disease complicated by cystitis and renal trouble; his stone weighed 1,072 grains. Perineal lithotomy was reserved for cases in which a lithotrite large enough to crush the stone could not be passed by the urethra. The operation was performed by making, on a

1. Annual Report on the Jaipur Medical and Meteorological Institute for 1903.

small staff, a median incision just large enough to permit a sufficiently large lithotrite to enter the bladder, one direct stabbing incision going straight into the bladder on a grooved staff was sufficient. The largest stone weighed 1,501.5 grains and the average stay in the hospital was 12.5 days.

SPLENIC ANEMIA.

In the medical wards of this hospital I had an opportunity to examine four cases of so-called splenic anemia, that is, a disease characterized by great enlargement of the spleen with progressive anemia. All the patients were young men, natives, from 18 to 35 years of age. In all the abdomen was very much enlarged and pendulous, and through the thin abdominal walls the outlines of the enormously enlarged spleen could be very plainly traced. In some of these cases the spleen extended beyond the median line and its lower border almost reached the level of Poupart's ligament. In two of the cases the liver was also markedly enlarged. Emaciation and a profound anemia in all of them were the most prominent clinical features. I was informed that this disease generally yields in the course of time to a sulphate mixture which is used in this hospital, of which the most active ingredients are sulphate of quinin and sulphate of iron.

During my visit to the Bengal Medical College, Calcutta, Capt. Seward Rogers, I.M.S., professor of pathology, was kind enough to show me under the microscope the parasite which has been shown to be the cause of this strange disease. It was discovered by Leishman and Donovan, and has been classified by Laveran and Mesnil under the name of *Piroplasma donovani*.

This newly discovered parasite has attracted a great deal of attention, and among the numerous articles descriptive of it I will only refer to the article on Piroplasmosis by Captain Donovan, published in the "Annual Report and Statistics of the Government General Hospital, Madras, for the Year 1903." And a very important monograph, "A Preliminary Report on a Parasite Found in Persons Suffering from Enlargement of the Spleen in India," by Lieut. S. R. Christophers, M.B., I.S.M., a government publication.

Captain Donovan, in the article referred to, gives a short history of his discovery, from which I will give here some extracts. In speaking of piroplasmosis he says: "Under this head I have classified a new disease prevalent in Madras; the symptoms are those of so-called chronic malaria. . . . I had noticed many cases of chronic irregular pyrexia, with enlargement of the spleen, and occasionally of the liver, bronchitis, edema of the feet, subcutaneous hemorrhages, chiefly of the petechial type, diarrhea of a dysenteric nature and cancrum oris. The treatment was most unsatisfactory, no drug having the least beneficial effect."

Captain Donovan doubted the malarial character of the disease and at once made a thorough examination of postmortem specimens. "With a view to remove this doubt I attended the postmortems and took smears of blood from the spleens of patients said to have died of chronic malaria. On the first day, April 9, 1903, I found, in a slide containing such a smear, numerous peculiar round and oval ring-like little bodies, with two masses of chromatin situated in opposite poles. Convinced as I was of their parasitic nature, I could not, however, refer them to any group of protozoa. I thought I had discovered the long-sought-for resting stage form of the malarial parasite in man, but on perceiving the same bodies in two other cases on April 23 and 24, 1903, I changed my view and considered that they might be postmortem degenerations of the nuclei of the splenic pulp cells. On June 15, 1903, I received the *British Medical Journal* of May 30, of the same year, and in it, on page 1252, was an account by Major Leishman, R.A.M.C., of organisms identical with mine. I at once recognized the similarity of what Leishman called degenerations of the trypanosomata, to the bodies found by me in the spleen blood of the three cadavers above mentioned."

On June 17, 1903, Captain Donovan punctured the spleen of a boy suffering from this type of fever and found in it bodies identical with those found postmortem. The results of this examination were published in the *British Medical Journal*, July 12, the same year. On September 23 he sent a slide containing these bodies to the Pasteur Institute, where they were carefully examined by Laveran and Mesnil and named in honor of their discoverer *Piroplasma donovani*.

A large clinical experience has demonstrated the direct etiologic relationship of this parasite with the splenic affections in question. The parasite is not found in the peripheral blood and, for diagnostic purposes, blood has to be obtained from the spleen by puncturing it. It is in this organ that the microorganism is found in greatest abundance. Puncture of the spleen for diagnostic purposes is not entirely devoid of danger; there is, at least, one case on record in which the puncture gave rise to fatal internal hemorrhage (Donovan, Case 24). The presence of this parasite in the splenic blood furnishes absolute proof of the nature of the splenic enlargement and settles the differential diagnosis between this disease and malarial and leukemic enlargement of the spleen. In the paper quoted above Captain Donovan gives a detailed account of 31 cases that came under his personal observation during one year with many postmortem findings.

Captain Donovan describes the clinical features of this disease as follows: "The symptoms are, in typical cases, an irregular pyrexia of two or three months' duration, accompanied with shivering with apyrexial intervals. About this time the spleen becomes enlarged and painful, and edema of the feet begins; there is usually diarrhea of a dysenteric nature, which comes and goes for a week or so at a time. Later the lungs are affected; there is cough and expectoration; enlargement of the liver, ascites (unusual); subcutaneous hemorrhages of a petechial nature; soreness of the mouth, gums or hard palate and cancrum oris. Marked emaciation and anemia supervene, the skin becomes dry and furfuraceous and, if the patient is not washed, the skin takes on a dark discoloration. . . . The blood examination, in cases of piroplasma infection, always shows a marked decrease of the red globules; these vary from two to three millions to the cubic millimeter. There is no actual increase of the leucocytes, but a relative one of the mononuclears, as in malaria. The urine usually contains albumin and invariably pigment, urobilin. The feces in some cases contain balantidia, ankylostoma and rhabdonemata. Quinin has been given by mouth, hypodermically and intramuscularly *ad nauscam*, with no appreciable result. The same may be said of other less suitable drugs, i. e., arsenic, salicylate of sodium, carbolic acid, etc.

I will give here as an illustration the findings of only one postmortem examination: "Case 30. Raghavan, aged 30 years, lived at Periyamett. Fever irregularly for a month and a half; spleen enlargement noticed a month ago; during this period he had occasional attacks of diarrhea and soreness of the mouth. Admitted for diarrhea and distension of the abdomen; his spleen and liver were enlarged and he had edema of the feet. He died on the fourth day after admission. The postmortem was made by Captain Symons, I.M.S., and the following notes were recorded: Considerable amount of clear fluid with floating lymph in abdomen; colon at splenic flexure gangrenous; transverse colon much thickened—almost half an inch in places and ulcerated, containing raised papillæ on the mucous surface of a bright red color; descending colon a dark gray color; spleen much enlarged with pigment in patches; liver enlarged 2½ pounds in weight."

The *Piroplasma donovani* is found free in the splenic blood and as a cell inclusion in the red corpuscles and macrophages, but more frequently in the leucocytes; in some of the cells it is multiple.

Lieut. S. R. Christophers, in his exhaustive monograph on this parasite, gives a very minute description of its morphology and multiplication by fission. "In films stained by Romanowsky's method the bodies are seen with great clearness. They exhibit a remarkable uniformity in size and appearance. The majority are about 2.5 micromillimeters in diameter, but forms may be found which are a little larger, 3 to 3.5 micromillimeters, or a little smaller. Very occasionally still smaller bodies, 1.5 micromillimeters in diameter, may be encountered. Most of

the bodies are approximately circular in outline, but very many, and especially the larger forms, are irregularly oval and very much resemble a cockle-shell in shape. This, indeed, appears to be the most typical shape, and even in the apparently round forms an approach to this shape can be made out. Occasionally specimens are found more elongated and distinctly pear-shaped. . . . Except in very rare small forms which show only a single chromatin mass, the bodies invariably possess two chromatin masses—a large one staining lightly and a small one staining intensely, with the red coloring matter of Romanowsky's stain.

"The two chromatin masses are usually situated opposite to each other in the shorter axis of the parasite. . . . The large chromatin mass is situated near what would be the hinge in the cockle-shell-shaped forms and in the thicker end of the pear-shaped forms. The body substance usually stains pink by the method employed (fixation in alcohol and staining by watery solutions of eosin and Romanowsky's blue). . . . Forms may be seen which appear to show division of the bodies into two. Appearances showing both longitudinal and transverse fission are seen. In the former two pear-shaped bodies are found lying side by side. The larger chromatin masses are situated in the thick end of the pear and the small red bodies at the thinner end, and the small chromatin mass may often be seen undivided when the larger masses are widely separated."

The discovery of the real parasitic cause of splenic enlargement and anemia, such a common and very fatal disease in India, will, it is to be hoped, soon lead the way to a more successful treatment.

The work done in this, one of the newest fields in pathology and bacteriology, by the officers of the Indian Medical Service reflects great credit on that branch of the British colonial service and will undoubtedly serve as a stimulant to others to blaze new pathways in the as yet but imperfectly explored wilderness of tropic diseases, tropic medicine and tropic surgery.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Furuncle.

As the non-operative procedure of treating furuncles, Hunter, in *Med. Age*, states that the objects to be borne in mind are:

1. Soothing and protecting the inflamed area.
2. The exclusion of the air.
3. Antisepsis.

To carry out these suggestions it is recommended that the following ointment be applied, spread on a piece of absorbent cotton considerably larger than the inflamed area. This should be applied and held in place by strips of adherent plaster across the ends, but not passing over the boil:

R.	Acidi carbolici	gr. v-x	[30-.65
	Ext. ergotæ fld	ʒi-ii	4-8]
	Pulv. amyli	ʒii	8]
	Zinci oxidi	ʒii	8]
	Ung. aq. rosæ	ʒi	30]

M. Fiat unguentum. Sig.: Apply locally.

This dressing may be allowed to remain in place for from twelve to twenty-four hours, when a new application should be made. If pus is present and discharging, the surface should be cleansed, but the boil should not be squeezed. According to the author, it is never found necessary to incise a boil when this treatment is employed. This ointment can be used in all stages, keeping the ointment on until the lesion is quite healed. Another non-operative plan of treatment may be carried out by thoroughly cleansing the area with soap and water, followed by a sponge with alcohol. If suppuration has begun, a strong germicide should be applied in the center by means of some absorbent cotton on a toothpick. For this purpose carbolic acid is the best antiseptic and germicide. Aristol should afterward be dusted over the affected area and covered with antiseptic cotton. The flaxseed poultice is condemned by the author as a splendid field for the growth of micro-organisms. He does recommend, in the early stages of the disease, where the tension and swelling are so great as to produce constant, severe pain, that a bichlorid or carbolized gauze be wrung out of boiling water and applied in a thick pad over the diseased area and covered with oiled silk or with oil paper. If the simple procedure of painting the area early with tincture of iodin, tincture of camphor or other antiseptics be carried out the boil may be aborted. In all cases where suppuration has begun it is better to incise. In earlier cases the foregoing treatment is certainly of value. As to internal medication, any constitutional disease should be treated.

Yeast has been recommended internally, two or three teaspoonfuls mixed with beer.

Colchicum, one-half grain (.03), daily is also highly recommended, especially in gouty subjects.

Treatment of Epilepsy.

Dana, in an abstract in *Ther. Gazette*, recommends the following outline of treatment of epilepsy in patients who can not arrange to be treated in an institution:

THE REGULATION OF THE DAILY LIFE.

Some study or some systematic work. The patient may be permitted to attend school for a part of the day or to take special lessons. If possible he should be encouraged to acquire some musical accomplishment or to learn some handicraft.

EXERCISE AND BATHING.

Three times a week or even six times a week, if the patient is strong, he must take some very active exercise for from 20 to 30 minutes, sufficient to make the perspiration pour out profusely. In the country he may chop or saw wood or ride a wheel. In the city he may learn to fence or box. If this can not be arranged, have the patient get a "hot box" and thrice weekly take a sweat followed by a cool ablution. This should be done about 5 p. m. in order that the patient may rest until the evening meal. Three times a week the patient should take a short (one minute) hot bath (98 to 108 degrees F.), followed by a lukewarm bath. In the morning a cool sponge may be taken. The foregoing are indicated in order to secure a free action of the skin, muscles and liver.

DIET.

The author gives no specific diet. These patients should have a simple mixed diet, with meat once or twice a day in moderation. The digestive tract must be carefully guarded. According to the author the non-saline diet is of no advantage.

OPERATIONS.

The author does not believe in the reflex causes for epilepsy, but regards it as a progressive degenerative disease, congenital in character. The history of alcoholism, syphilis or trauma should be inquired into, the eyes should be examined as well as the sexual and pelvic organs. While the fits may cease for a time, after operation for phimosis or removal of ovaries, the case is never permanently benefited. Operation is, of course, indicated in Jacksonian epilepsy, but in no other cases except in certain imbeciles.

MEDICINES.

The basal medication is bromids. The average daily dose, for patients over 14 years of age, is 60 grains (4.00). The author regards the glycerophosphate of sodium as the best adjuvant given in doses of 30 grains (2.00) daily, combined as follows:

℞. Aq. sol. sodii glycerophos., 50 per cent..℥ii 60
Sodii bromidi.....℥iii 90
Aquæ q. s. ad.....℥vi 180

M. Sig.: One teaspoonful twice a day in water, six days in the week.

The author emphasizes the importance of giving the medicine twice a day only, and omitting one day in the week in order to allow the patient time to cleanse the alimentary tract. Once a month the author prescribes a mercurial and one day in the week a glass of hot water containing 30 grains (2.00) of sodium bicarbonate three times a day before meals.

After each meal an acid tonic is given as follows:

℞. Tinct. ferri chloridi (1 year old).....℥i 30
Acidi sulphurici dil.....3iv 15
Aquæ 3x 40
Olei menth. pip.....m. v 30

M. Sig.: From 15 to 25 drops well diluted or dropped in capsule after each meal.

INCREASE OF MEDICATION.

As the patient improves the medication should be increased. The less frequent the attacks and the more secure the patient feels, the more stringent should be the watch and the larger the dose. What has been gained must be secured or the work all done over again. After a year's remission it is especially important to increase the medication, and the general care of the patient and for two months he must be closely observed, then the treatment may be decreased for six months. Some relief may be felt after fourteen months, some security after two years and strong confidence after three years.

Malaria.

The following combinations are recommended by *Critic and Guide* in the treatment of malaria:

℞. Quin. sulph.
Salol, āā .....gr. xl-3i 2.66-4
Codeinæ sulph.....gr. iii 20
Acetanilidi .....gr. xx 1 30

M. Fiant cap. No. xii. Sig.: One capsule every three hours.

Ten drops of dilute hydrochloric acid is recommended after the capsule to insure its solution in the stomach. If it is desirable to administer the medicine in solution the following is recommended:

℞. Quin. sulph.....gr. l-lxxx 3.30-5 30
Acidi hydrochlor. dil.....3iss-iiss 6-10
Tinct. zingiberis 3iiss-iv 10-16
Tinct. opii camph.....3ii-iv 8-16
Syr. limonis .....℥ii 60
Aquæ q. s. ad.....℥viii 250

M. Sig.: One tablespoonful ever four hours in water.

For malarial cachexia following either the remittent or intermittent forms of malaria the following is recommended:

℞. Quin. sulph.....3iss 6
Ferri reducti .....℥i 30
Ext. nucis vom.....gr. viii 50
Acidi arsenosi.....gr. i 06
Ext. colocynth. comp.....gr. x 65
Podophyllini .....gr. i-iii 06-.20
Mellis q. s.....

M. Fiant pil. No. lx. Sig.: One after each meal.

For latent and masked forms of malaria the following is recommended by Krauss:

℞. Quin. hydrochlor. 3ss 2
Hydrarg. chloridi mitis.....gr. v 30
Pulv. capsici .....gr. iss 09
Pulv. opii et ipecacuanhæ.....gr. v 30
Aloini .....gr. 1/6 01

M. Fiant cap. No. vi. Sig.: One every four hours.

Substitute for Milk in Intestinal Diseases of Children.

Helprin, according to an abstract in *Med. Record*, recommends the following as a substitute for milk in the treatment of intestinal diseases of children:

Two tablespoonfuls of ordinary flour, browned in the oven, then dissolved in a little cold water. This amount should then be added to and stirred in two pints of boiling water. This may be given in quantities of three ounces at a feeding. One-half a dram of condensed milk, gradually increased to one and a half drams, may be added at each feeding. The following prescription is of service in checking the diarrhea:

℞. Bismuthi subnit.....3v 20
Bismuthi salicylatis .....gr. xii 75
Syr. rhei aromatici.....3iii 12
Aquæ dest. q. s. ad.....℥iv 120

M. Sig.: One teaspoonful every two to four hours.

Venereal Warts.

The prophylaxis and initial treatment, according to Rohrer, in *Amer. Jour. Med. Sciences*, are practically the same. In either case the cause should be removed. If gonorrhea is present, treat it. If balanitis exists, repeated cleansing and drying of the parts are imperative. The treatment proper of venereal warts may be either medical or surgical. The former, according to the author, includes dusting powder, ointments, lotions, pastes and caustics. The latter may be carried out by means of the knife, scissors or curette and caustic agents.

MEDICAL TREATMENT.

Dusting with calomel alone is one of the simplest methods, or the following combination is more efficacious:

℞. Hydrarg. chloridi mitis.....3i 4
Bismuthi subnit.....3ii 8

M. Fiat pulvis. Sig.: Apply locally as a dusting powder. Dusting the growths with boric acid is very frequently sufficient to cause their disappearance. Or the following is recommended:

℞. Zinci oxidi
Bismuthi subnit., āā.....3ii 8

M. Sig.: To be applied locally.

A 10 per cent. salicylic acid ointment may be more serviceable in some cases. Resorcin is also recommended by the author as superseding all other local applications:

℞. Resorcini .....gr. xv 1
Liq. petrolati .....℥i 30

M. Fiat unguentum. Sig.: To be applied locally after thoroughly cleansing the parts.

The following combination, it is said by Martin, will remove warts in from twelve to twenty-four hours:

℞. Acidi salicylici 3i 4
Acidi acetici .....℥i 30

M. Sig.: Apply locally with a brush once daily.

A sufficient amount of the foregoing should be deposited on the warts to cover their entire surface and then allowed to dry. One or two applications usually causes them to disappear without a recurrence.

It is also recommended that ferric chlorid be applied to the growths three times daily, the shrunken portion removed with a curette and the drug reapplied until the base is reached. If bleeding takes place it may be stopped with a 5 per cent. solution of antipyrin.

SURGICAL TREATMENT.

The author states that neither curettement nor excision is so effectual as removal by curved scissors unless the growths are very small and few in number; an anesthetic, either general or local, is necessary. Of the local anesthetics, ethyl chlorid and cocain are the best, and ether as a general anesthetic. After the growth is cut off the base should be cauterized with nitric acid or carbolic acid. The wound should then be dusted with iodoform or a powder composed of zinc oxid and calomel, followed by a gauze dressing. Where hemorrhage is severe from excision of large papillomata the actual cautery may have to be brought into service.

CAUSTICS.

The principal caustics are nitric acid, chromic acid, caustic potash, silver nitrate, carbolic acid and glacial acetic acid. When nitric acid is employed the surrounding parts should be protected by some bland ointment. The caustic should be applied on alternate days until the warts are removed. Chromic acid is liable to produce toxic symptoms. With proper care it may be applied locally once daily, either pure or in 10 per cent.

solution. The following combination is quoted by the author as being a very valuable caustic:

℞.	Plumbi oxidi .....gr. ii	1	12
	Potassii hydratis .....gr. xx		30
	Aquæ q. s. ad.....3i	4	

M. Sig.: Shake well and apply, by means of a brush, to the lesion. One or two applications are sufficient.

Intraurethral growths may be removed by means of the urethral forceps, the wire snare, the urethral curette or the galvanocautery through the urethroscopic tube. The treatment of venereal warts in women is analogous to that in the male.

Aspirin in Symptomatic Treatment in Inoperable Cancer.

Ruemann, in *Deut. Med. Wochenschrift*, recommends the administration of aspirin as the substitute for morphin in relieving the excessive pain in cancer. He usually gives it in doses of 7½ grains (.50) every half hour, if necessary, until 30 grains (2.00) have been given. For the production of sleep he gives a dose of 15 grains (1.00) at bedtime. No bad results were produced from the administration of the drug in this manner and its effects were not lessened by time.

Medicolegal.

Non-expert Opinions Based on Insufficient Knowledge.—The Supreme Court of Illinois holds, Chicago Union Traction Co. vs. Lawrence, that if a non-expert witness gives an opinion without sufficient knowledge of facts to support it, opposing counsel may, on cross-examination, show that it is of little value and should have little weight. It may be attacked on argument, and the jury may be instructed that the weight to be given to such opinion depends on the intelligence of the witness, on his acquaintance with the person if mental condition is the subject of investigation, on his means of observation, and on his veracity.

State of Mind of Declarant May be Shown.—It must be remembered, the Supreme Court of Illinois says, in Nordgren vs. People, that dying declarations are in their nature merely secondary evidence, and the party against whom they are produced in evidence has no opportunity to cross-examine the party making such declarations. It has been held that, when dying declarations are offered in evidence, it is competent for the accused to show, on cross-examination of the state's witnesses, or by other witnesses, that the deceased in making the statements was in a reckless, irreverent state of mind, and entertained feelings of malice and hostility toward the accused.

Regarding Schools of Medicine, Chemistry, Pharmacy.—The Court of Appeals of Kentucky says, in the case of the Louisville College of Pharmacy vs. City of Louisville, that if the teaching of law, medicine, chemistry and pharmacy in universities does not deprive them of the character of "institutions of education," it seems to the court that an institution which confines its instructions to one of them is no less an institution of education. The question in this case before the court was whether the college of pharmacy mentioned was an "institution of education" exempted from taxation under the state constitution. The court says that it can conceive of no more useful and important branch of knowledge than that of pharmacy. That knowledge is necessary to protect the lives and health of the citizens of the commonwealth. So important is this branch that the General Assembly has taken the matter in hand and has prohibited any one from compounding medicines unless he has been graduated from some institution of education where pharmacy is taught. In this case public-spirited persons had associated themselves together and organized an institution not for gain or profit but that persons might be educated in pharmacy so that the drug business might be conducted according to law, and the public protected from the uneducated and ignorant pharmacists. It is a home institution, infantile in the matter of age, and merits the protection given by the constitution. Consequently the court is of the opinion that it is exempt from taxation.

Liability for Care of Persons with Contagious Diseases.—Section 7059 of the General Statutes of Minnesota of 1894 authorizes the board of health of any town, village, borough or city to provide for any resident thereof or person coming from abroad who may be afflicted with smallpox or other contagious disease. It in part reads: "And shall provide for such person or persons, nurses, medical attendance and other necessaries which shall be a charge in favor of such town, village, borough or city on the person so provided for, his parents, guardian or master, if able; otherwise on the county in which he has a legal settlement, or on the state, if said person be a non-resident of the state and has no property within the state." Under the provisions of this section the Supreme Court of Minnesota holds, Board of Commissioners of Marshall County vs. Board of Commissioners of Roseau County, that a county is not liable to the various towns, villages or cities throughout the state for expenses necessarily incurred in caring or providing for a person having a legal settlement in said county, who is afflicted with a contagious disease in such municipalities, where the person so provided for is solvent. It says that this section, being section 15 of chapter 132 of the General Laws of 1883, has been greatly confused with section 29 of said act, being section 7073 of the General Statutes of 1894, as amended by chapter 238 of the Laws of 1901, and since reamended by chapter 29 of the Laws of 1902. The act of 1901 has reference solely to expenses incurred by towns, villages or cities in the control of contagious or infectious diseases. It has no reference to expenses incurred in caring for individuals. The line between expenses incurred for the purpose of preventing the spread of such diseases and in caring for individuals may be a delicate one to draw, but it is clear the legislature in the two provisions referred to has fastened a liability on the various counties of the state for necessary expenses incurred by the public authorities of the various towns, villages or cities situated therein in preventing the spread of an infectious or contagious disease; while, on the other hand, by section 7059 it is clearly provided that the various counties of the state shall reimburse towns, villages or cities either situated within or without their respective borders for necessary expenses incurred in providing nurses, medical attendance and other necessaries for persons having a legal settlement in such counties, who are afflicted with an infectious or contagious disease, but only on condition that they or their parents or guardians are financially unable to discharge such obligation. As this court construes section 7073, as amended, it deals solely with expenses incurred in controlling contagious diseases.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

November 26.

1 *The Problems of Internal Medicine. Wm. Sydney Thayer.
2 *Seventy Intubations for Laryngeal Diphtheria—The Lack of Hospitals for Diphtheria and Other Contagious Diseases. Rosa Engelmann.
3 Laboratory Aids in the Rapid Diagnosis of Rabies. Walther H. Buhlig.
4 *Inversion of the Uterus: the Treatment in Cases Complicated by Necrosis of the Inverted Part. Brook M. Anspach.
5 *Variations of Radiotherapeutic Technic. Russell H. Boggs.

1.—See abstract in THE JOURNAL of October 8, page 1079.

2. **Intubations for Laryngeal Diphtheria.**—Engelmann adds 23 cases of intubation for laryngeal diphtheria to 47 published previously, making a total of 70 patients operated on in 10 years. All the operations were done under adverse circumstances and in the worst possible environment. The majority (47) of these operations were done in the earliest antitoxin period, consequently, there is a 38.4 per cent. mortality for this first series of cases, as compared with a 36.6 per cent. mortality for the second series of 23 cases; or, deducting 3 preventable, unjustifiable deaths from this latter series (23 cases with 5 deaths) to a 21.7 per cent. mortality, and for the total of 70 cases to a 37.2 per cent. mortality. One prevent-

able death was due to a choked tube, which the parents refused to have removed; another to a choked tube removed three hours too late; the third was due to the removal for cleansing of a tracheotomy tube by an uninstructed interne, who probably could not quickly enough replace the tube, the parts being very edematous. Engelmann believes that laryngeal diphtheria, recognized as such in its early stage, and treated properly by a sufficient antitoxin dosage, need never advance to the obstructive stage that necessitates even intubation, much less tracheotomy. In support of this belief, she refers to the fact that her cases numbered 23 in the second five years, as compared with 47 in the first five years. The greatest number of times intubation was done on a patient was 19 times. The number of autoextubations, or expulsion of the tube, was 18 times in one case, 16 times in four cases, 3 times in 15 cases, and 4 times in 4 cases, making 24 cases. The tube was placed and finally removed in 46 cases. In the patients who recovered, the minimum number of hours the tube was worn was 7, and the maximum, 692, or 28 days and 20 hours. In another prolonged case that ended fatally the patient wore the tube 548 hours, or 22 days. The average time of wearing the tube in the 70 cases was 108½ hours, or 4 days and 12½ hours. In the death list, the minimum, maximum and average time of wearing the tube was 2¾, 548, 86¾ hours. The culture was negative and unknown in 2 cases; showed Klebs-Loeffler bacillus in 50 cases; staphylococcus and streptococcus in 3 cases; Klebs-Loeffler associated in 9 cases; staphylococcus in 3 cases; streptococcus in 1 case; pneumococcus in 1 case. All the cases were fed by the inverted Casselberry method, either on the bed, with the head hanging over the edge of it, or in the same position on the mother's lap. There was spasm of the larynx in 11 cases, and the tube was found choked in 14 cases. Pneumonia complicated 13 cases; rashes, 15; arthritis, 1; measles, 1, and decubitus of the larynx, 1 case; sepsis, 8 cases; cardiac paralysis, 1; nephritis, 1 known case. Engelmann says that the type of disease seen during the past year is more malignant than that observed in previous years. She has also seen comparatively more of the so-called primary laryngeal type during the past year than in the previous 9 years, and also did the largest number of the 23 cases in this short period.

4. **Inversion of the Uterus.**—In the case cited, Anspach adopted the simple plan of amputating the inverted mass, because of the lessened danger of infection, and the undesirability of removing the adnexa, which were normal. The pedicle of the mass was compressed by a large hysterectomy forceps. After cutting away the necrotic mass beneath the forceps, the latter were left in place, their points being pushed back into the uterus and this packed with gauze. Forceps seemed safer than sutures because there was less liability to infection of the peritoneum. The forceps sloughed off on the fifth day, and the patient made an uneventful recovery.

5.—See abstract in THE JOURNAL of September 24, page 909.

Medical Record, New York.

November 26.

6 *Diseases of the Skin Connected with Errors of Metabolism. L. Duncan Bulkley.
7 *A Case of Conglomerate Tubercle of the Choroid. Thomas R. Pooley.
8 *The Treatment of Pneumonia. Frank De Witt Reese.
9 Three Cases of Primary Malignant Tumor of the Lung. Siegrief Wachsmann and Alfred W. Pollak.
10 Report of a Case of Chronic Cystic Dilation of the Vermiform Appendix. J. C. Landenberger.
11 Natural vs. Scientific Feeding of Infants. D. E. English.

6. **Skin Diseases and Metabolism.**—Bulkley reviews the underlying principles of metabolism and the means by which abnormal variations in the process may be recognized. He considers a proper study of the urine an invaluable aid in the practical management of this class, and that without such study much of the treatment would be experimental and empirical. Metabolism represents the changes occurring in the system, whereby nutritive materials and oxygen are transformed into living tissue, and retransformed into waste products, while during these processes, their potential energy is being given off in living force and heat. As healthy cell action and transformation is produced and maintained by perfect metabolism, so, when there is perverted metabolism, the structures in various parts of the body must suffer, and that is called disease. Furthermore, inasmuch as every cell in the body constantly takes up and gives off material, so the results of metabolism can be affected by the normal or abnormal action of every living cell in the organism. Metabolism, however, is principally affected by the kind of nutriment taken; the action of the digestive organs and ductless glands, and the action of the nervous system. Among the skin lesions or eruptions which are believed to be associated with or dependent on metabolic conditions are gout, rheumatoid arthritis, diabetes, obesity, and scrofula. As yet, no absolute statements can be made, says Bulkley, as to the necessary connection between the two, for the same eruptions occur in several of the metabolic affections. The idiosyncrasy of the patient, and many causative elements, external or internal, nervous, etc., often determine which form of skin disturbance or alteration shall take place. Errors of diet, disorders of digestion, faulty excretion and nervous derangement, which have all been recognized as etiologic factors in many diseases of the skin, often find their ultimate expression or mode of action through the faulty metabolism induced thereby. Metabolic errors are exhibited in the excreta from the lungs, skin, intestines and kidneys, and, of these, as mentioned, the urine best affords a satisfactory indication, as it represents nearly one-half of the total excreta, and practically all of the nitrogenous and soluble mineral substances, together with about one-half of the water expelled from the system.

7. **Tubercle of the Choroid.**—Pooley reports a case of conglomerate tubercle of the choroid, with extension into the sclera and retina, and secondary glaucoma occurring in a man aged 26. The eye presented the usual symptoms of absolute glaucoma and there was no ophthalmoscopic reflex. The other eye was normal. The affected eye was enucleated and miscroscopic examination of the tissues showed that the process was well advanced, and tubercle bacilli were demonstrated in stained sections. The patient made an uneventful recovery, and one year after the operation there is no evidence of any pulmonary involvement.

8. **Treatment of Pneumonia.**—Reese cites 21 successive cases of lobar pneumonia, which were treated with few drugs and without alcohol. There were two deaths in the series, one, a man 28 years of age, who died from uremia produced by retention of urine because of an impassable urethral stricture. The other was a traumatic case, that of an old lady, of 83 years, who fell and broke two or three ribs, and developed pneumonia; she lived only a few days. Eliminating this case from the series, there was a mortality of only 5 per cent., and that was not because of the treatment employed. Reese urges that the treatment of pneumonia should always be eliminative, and that we should refrain from putting anything into the system in such large doses as taxes the vital powers to eliminate it. He inaugurates his treatment by giving a foot bath according to Dr. Rochester's method, thus equalizing the circulation and quieting the nervous system. Then he gives 5 grains of calomel, followed by a saline, to empty and disinfect the alimentary canal and stimulate the action of the kidneys. He also gives salicylate of sodium in small doses every hour, until the diagnosis is fully established. Then the patient is put on acetate of potassium, 10 grains every four hours with half a glassful of water. He believes that if we can stimulate the kidneys by making the blood more alkaline, the system will be relieved of the ever-accumulating toxins, which depress the nervous system and poison the heart muscle. His experience inclines him to the belief that the potassium salts have some specific action in the treatment of pneumonia, and that they should be administered in some form to every case. Associated with the acetate of potassium, there is given one dessert-spoonful of liquor ammoniæ acetatis, with fluid extract of licorice, diluted with

water, every two hours. Reese expects with this to relieve the burdened right heart by bleeding the patient into his capillary vessels and eliminating the toxins by diaphoresis. With this also, pyrexia and cough are controlled to a great extent. Cold sponging is resorted to, or the cold pack to the chest, changed every two hours, if the temperature rises to 105. The patient should not be fed too often nor too much, and the food should consist of the most digestible substances, such as milk, beef tea, broths, and beaten egg. Abdominal distention is relieved by the use of a rectal tube or by a daily enema, and turpentine stupes to the abdomen. The pulse should be closely watched. A hard pulse is softened with Dover's powder and nitroglycerin, and a soft pulse is strengthened with strychnin, digitalis, ergot, and especially rest, on which great emphasis is laid. His experience has taught him that the mortality is less when alcohol is not given, because alcohol really does just what we try to undo with our treatment. There is no indication in the treatment of pneumonia that can not be met by other remedies than alcohol.

New York Medical Journal.

November 26.

12 *Methyl Alcohol, Its Properties, Uses and Abuses. H. W. Wiley.
13 Radiotherapy; a Review. Milton Franklin.
14 *The Relation of the Physician to the Bureau of Health. S. W. Newmayer.
15 *The Surgical Cure of Certain Cases of So-called Chronic Dyspepsia. C. A. L. Reed.
16 *Fibroma of Mastoid, Auricle and Auditory Canal. Thomas R. Pooley.

12. **Methyl Alcohol.**—Wiley describes the various methods of manufacture of methyl alcohol, its properties, methods for detecting methyl alcohol in commercial spirits, its uses and abuses.

14.—See abstract in THE JOURNAL of November 26, page 1651.

15. **Surgical Cure of Chronic Dyspepsia.**—Reed cites some illustrative cases and discusses in detail the confusing symptomatology, the pathology and natural history and other clinical data, the principles of treatment, and the after-course. He says that the majority of cases of so-called "chronic dyspepsia," "gastralgia," "nervous gastralgia," "neuralgia of the stomach," "cardialgia," and "hyperchlorhydria" are, in fact, cases of ulcer or the organic consequences of ulcer of the stomach or duodenum, or both. Cases amenable to medical treatment should be cured in from five to six weeks, after which time they should be placed in the surgical category, while hemorrhagic cases should be operated on without the delay prescribed by medical writers. Surgical ulcer of the stomach, says Reed, if neglected, may develop adhesions, perforations, hemorrhages, or cancer, or, in the absence of these, may provoke sepsis and anemia, which, if the underlying conditions are not corrected by operation, may, and frequently do, prove fatal. Therefore, it is important that the cases should be promptly brought to operation, which should establish rest and maintain drainage for the diseased organ. Reed believes that the comfortable after-course of these cases, the low primary mortality, and the permanent curative results following the operation comprise its complete justification.

16. **Fibroma of Auditory Apparatus.**—In the case cited by Pooley, there was found a large elastic growth, situated behind the ear, close to the attachment of, and extending for some distance on the posterior surface of the auricle, about the size of a pigeon's egg; also another filling the meatus, and extending for some distance into the auditory canal, about the size of an olive. The tumors were removed by operation, but, owing to the unsatisfactory course of the healing, treatment by the *x*-ray was resorted to. This was followed by immediate improvement in the patient's general condition, and an early healing of the entire wound. The pathologic diagnosis of the tumor masses was fibroma. The clinical diagnosis was sarcoma, and Pooley inclines to the belief that the course of the disease, with its frequent relapses and the length of time required to secure a healing, show the malignant character of the disease.

Boston Medical and Surgical Journal.

November 24.

17 The Ideal of Accuracy in Clinical Work; Its Importance and Its Limitations. Richard C. Cabot.
18 *Metatarso-tarsal Valgus or Humped Foot and Its Relation to Boots. E. H. Bradford.
19 *The pain of Osteo-arthritis of the Spine; Its Bearing on the Diagnosis of Urinary Disease. Arthur L. Chute.

18. **Humped Foot and Boots as a Cause.**—Bradford discusses the relation of deformities of the foot to the wearing of improperly made shoes. The most common deformities, he says, are caused by crowding the toes together, as the shoe is always made narrower than the natural spread of the foot. This crowding results most injuriously on the great toe, which is pushed toward the middle of the foot and frequently partially dislocated. The boot is then pressed backward on the foot and, meeting the resistance of the head of the first metatarsal, develops, by irritating, irregular bony enlargements, as well as thickening and irritation of the skin. This will result from a loose boot as well as from a short or tight boot. The injurious effect of the shoe is increased by the custom of a stiffened toecap, which prevents the stretching of the leather and acts as a clamp, holding the toes together, when they would naturally spread in walking. The remedy of the present prevalence of shoe deformities must come by educating the public demand, as has been accomplished in an improvement in the shape of corsets and the more general use of less harmful waists. Bradford is convinced that this is the result, largely, of the increasing athletic activity of women, and partly by a better knowledge of the human figure. It should be the custom for all people to furnish themselves with working and dress boots, and to relieve the foot from all pressure when at leisure, wearing moccasins or Turkish slippers. The working shoes of women should be like those of men, giving freer play to the foot. Children should wear moccasins, sandals and loose, light boots and shoes.

19. **Osteo-Arthritis of the Spine and Urinary Disease.**—In his attempts to find a definite cause for obscure pain, which was supposed to depend on hypochondriasis or neurasthenia, Chute examined with great care all urinary patients who complained of pain for which there was no evident cause. The only abnormality he could find in some of these patients was a stiff lumbar spine, treatment of which gave relief from the pain in a certain number of cases. A continued study of this subject has convinced him that this pain of osteo-arthritis of the spine is an element which must be taken into consideration in the diagnosis of a certain number of cases which present themselves to men interested in urinary disease. He applied the term osteo-arthritis of the spine to those chronic, non-tuberculous processes which are characterized clinically by more or less stiff or immobile spines, usually presenting considerable spasm of the back muscles and often accompanied by local or referred pain. He has observed two sorts of pain, one, which is local, referred to the spine or vaguely to the back in the lumbar or sacral regions, and is to be attributed to sensitive vertebral articulations. The second pain is referred to the distribution of certain of the nerves arising from the lumbar or sacral plexuses, and probably is due to the presence of an inflammatory exudate about the spinal articular processes, which exudate exerts pressure on the nerve roots as they pass out between the laminæ. The local pain may, under some conditions, be confounded with the pain of movable kidney, prostatitis, or vesiculitis. The patients who present themselves with a pain of this sort have, as a rule, suffered from previous attacks of urethritis or other urinary disease. When, on examination, a stricture, a prostatitis, or some pathologic condition is found, the pain is supposed to depend wholly on this. In the absence of such findings, the pain is likely to be considered neuralgic or neurasthenic. Therefore, these cases should be examined carefully with reference to the presence of any disease of the urinary tract. In the mildest cases, improved hygiene and phosphate of soda may be all that is required. In most cases, however, something is required which will support the

spine or even partially or wholly immobilize it. In some cases seen by the author, strapping the back with strips of adhesive plaster has been sufficient. In some, a wide, heavy canvas belt has relieved the pain, while in others a plaster or leather jacket has been required. The duration of treatment may vary from a few weeks to many months.

Medical News, New York.

November 26.

20 *Operative Treatment of Retroversion and Retroflexion of the Uterus. Walter A. Jayne.
21 Stone in the Kidney; Its Diagnosis and Operative Treatment. Joseph Ransohoff.
22 *Therapeutic Value of Colorado Climate. F. Gillett Byles.
23 Does Absence of External Injury Legally Demonstrate Fright or Mental Etiology? James G. Kiernan.
24 *Compressed-Air Illness, or Caisson Disease. Charles J. Aldrich.
25 A New Case of Chloroma with Leukemia; with a Study of Cases Reported since 1893. (Continued.) George Dock and Alfred Scott Warthin.

20. **Retroversion and Retroflexion.**—Jayne reviews the operative treatment of these conditions and expresses himself as being in favor of the Alexander operation.

22. **Therapeutic Value of Colorado Climate.**—Byles emphasizes the fact that a sick man in Colorado needs medical care just as much as he does in the East, and that the same medical care, aided by the atmospheric conditions of the place, will, in suitable cases, result in much greater benefit to the patient in Colorado than the one in the East. The benefit of Colorado climate to a tuberculous patient depends very much on a proper understanding on his part of the kind of life he should live there. A tuberculous patient will do better in the East with plenty of food and home comforts than in Colorado on a starvation diet. He had better live out of doors in the East than shut up in a stuffy room in Colorado.

24. **Caisson Disease.**—Aldrich discusses the clinical history of this affection as he has found it in a study of over 50 cases.

St. Louis Medical Review.

November 26.

26 The Diagnosis and Treatment of Perforation in Typhoid Fever. A. T. Bristow.
27 Fracture of a Lower Dorsal Vertebra with Paraplegia; Operation; Recovery with Partial Restoration of Function. H. G. Mudd.
28 Report of the Foregoing Case of Fracture of a Lower Dorsal Vertebra. M. W. Hoge.

Lancet-Clinic, Cincinnati.

November 26.

29 *The Effect of Direct and Indirect Violence on the Skull and Brain. Albert E. Sterne.
30 *The Female Breast—Some of Its Notable Characteristics as to Structure and Functions, Their Elements and Pathology. Thomas H. Manley.
31 The Surgical Cure of Certain Cases of So-called Chronic Dyspepsia. Charles A. L. Reed.

29.—See abstract in THE JOURNAL of November 12, page 1491.

30.—See THE JOURNAL, October 29, page 1327.

Western Medical Review, Lincoln.

November.

32 *Variola Hybrida (Happel) and Vaccination. J. S. von Mansfelde.
33 The Management of Suppurative Cases of Appendicitis. Charles C. Allison.
34 *The One-Minute Form of Chloroform and Ether Anesthesia. H. Gifford.
35 Inflammatory Diseases of the Frontal Sinus. George H. Bicknell.
36 Medical Bibliography. H. Winnett Orr
37 Management of Accidental Wounds. S. S. Wilson.

32. **Variola Hybrida.**—Mansfelde maintains that the recent epidemic of so-called smallpox is not the classical disease, but a modified species. In observing several hundred cases, he recognized at least four distinct varieties of smallpox (subspecies), as well as various types of each variety. Persons contracting the disease developed the same variety of smallpox as had the patient from whom the disease was contracted. "Each variety bred true to seed." Mansfelde considers that glycerinated lymph is a chemically changed virus, which has not the protective power of spontaneous cowpox virus or human virus; and that the latter, taking the possibility of transmission by it seriously, is safer than glycerinated lymph.

34. **One-Minute Form of Anesthesia.**—This method of anesthesia was introduced by Sudeck. He pours three to five grams of ether into the cone and after the patient has taken 10 to 15 deep inhalations, the operator can begin. Clifford terms this method "one-minute anesthesia," since in many cases the operation can be started in about a minute after the first inhalation is taken. He has used the method in about 200 cases and cites a number of them to illustrate what can be done. One difficulty in using the method is to decide when to begin and when, during the operation, to give more or less of the anesthetic. To get the best results, not only as to safety, but efficiency, the patient must be kept in the narrow zone between the stages of sensibility and excitement. He has the patient count after the anesthetizer, who occasionally changes the order of the numbers, and the minute the correct answers cease the anesthetic should be stopped and the operation begun. During the operation the anesthetizer should frequently urge the patient to count, and, if he responds, a little more anesthetic should be given, but not otherwise. If signs of excitement or resistance appear, stop the anesthetic and the operation for a minute or so, until the patient will count again. The advantages of the method are: (1) The decrease of danger; (2) the saving of time; (3) the saving of pain; (4) comparative absence of after-effects, vomiting is very rare during or after the anesthesia, and where nausea occurs after it is over, it is of short duration and very trifling compared with that which follows the deeper form. The disadvantages of the method are: (1) That it sometimes fails to work. According to Gifford, this simply means that the patient has to be pushed along into the ordinary deep stage, and, therefore, the objection is not serious. (2) That if the plan of making the patient count, off and on, during the operation is followed, it interferes with the quiet and order in the operating room and with any teaching which the operator may wish to carry on during the operation.

Therapeutic Gazette, Detroit.

November 15.

38 Blood Changes Produced by Ether Anesthesia in Both Man and the Lower Animals. J. M. Anders and L. Napoleon, Boston.
39 An Inorganic Oil Solution of Acetozone for Treating Suppuration in the Lower Air Passages. John J. Kyle.
40 A Statistical Report of Cases of Accidental Gunshot Wounds, following the Fourth of July Celebration, treated in the City Dispensaries of the City of St. Louis with Antitetanic Serum. Henry J. Scherck.
41 *The Problems of Therapeutics. (Concluded.) Sir Lauder Brunton.
42 *The Relation of Therapeutics to Other Sciences in the Nineteenth Century. Oscar Liebreich.
43 *Effect on Edema of Elaterium in Non-Purgative Doses. Henry Sewall.

41 and 42.—See THE JOURNAL of October 8, page 1079.

43. **Elaterium in Edema.**—Sewall believes that elaterium, aside from its action on the excretory functions of bowels and kidneys, directly excites absorption of fluid from the tissue spaces. Whether this effect is brought about by a sudden increase of osmotic pressure of the blood or through some specific stimulation of the capillary epithelia through which endosmosis is accelerated, is a question for definite investigation. He has found that the action of elaterium seems to be cumulative over considerable intervals of time. One or two small doses daily may finally produce a physiologic effect or give rise to intolerance. The drug may appropriately be used in most cases of edema, barring those in which there is a tendency toward enteritis. If it is attempted to obtain therapeutic results without nausea or griping, elaterium will be found irregular and unreliable in its action. Sewall suggests that possibly better results will follow the use of its active principle—elaterin. He has given elaterium in doses of three thirty-seconds (3/32) of a grain, on two or three successive days, every hour until nausea is produced, with most excellent result. Out of 20 recorded cases, elaterium disagreed—produced nausea, or rarely griping—in about one-half. In most instances the diminution of dropsical accumulations under its influence was attended with purgation. The favorable results secured through the use of elaterium, supported by appropriate other treatment, were of a strikingly durable character.

Iowa Medical Journal, Des Moines.

November.

44 Treatment of Pneumonia. P. Joor.
45 *Turpentine a Cure for Traumatic Gangrene. Will D. Christy.
46 Nose Treatment in Injuries of the Eye. F. G. Murphy.
47 Infected Wounds. Henry Wiedow.

45. **Turpentine in Gangrene.**—Christy avers that in traumatic gangrene equal parts of turpentine and raw linseed oil, constantly applied on lint or on a soft linen cloth, have always affected a cure, and that he has thus saved a limb that had been condemned to amputation. The case referred to was a young man who was struck by a crank of a threshing machine engine on the middle of the forearm, bruising the tissues for three inches entirely across the arm, and also fracturing the ulna. In 48 hours the bruised parts were black, with numerous blebs appearing on the uninjured skin around it. The arm was treated as mentioned above, and in 10 days the danger was passed and the arm was as sound as ever.

Columbus Medical Journal.

November.

48 A Study of Metabolism in Five Cases of Dementia Precox. Eugene F. McCampbell.
49 *Exophthalmic Goiter, with Report of a Very Rare Case. J. W. Wright.
50 The Columbus Sewage Testing Station. R. Winthrop Pratt.
50½ Fifty Years in Medicine. John D. West.

49. **Exophthalmic Goiter.**—Wright's case is that of a girl aged 16, with the following history. When she was about 8 years old, there was first noticed a protrusion of the left eye, with pronounced nystagmus of both eyes, and defective vision, much worse in the left eye than in the right. When she was 13, it was discovered that she was entirely blind in the left eye. Both eyes were very much protruded, the left more than the right; there is pronounced external squint of the left eye. The pupils are normal. When the right eye is exposed, there is consensual reaction of the pupil of the left eye. An ophthalmoscopic examination showed complete atrophy of the disc of the left eye, with large retinal veins and small arteries. The right eyeground appeared almost normal. The interesting features in this case, says Wright, are the age and the loss of vision.

Wisconsin Medical Journal, Milwaukee.

November.

51 *Importance of the Early Removal of all Neoplasms Whether Malignant or Benign. Charles W. Oviatt.
52 *Intermittent Claudication and Analogous Phenomena (Angina Pectoris, etc.). Arthur J. Patek.
53 *The Therapeutic Uses of the Roentgen Ray in Dermatology. Louis F. Frank.
54 Delayed and Non-Union of Fractures. A. Hayden.

51 and 52.—See THE JOURNAL of July 2, pages 66 and 67.

53. **Roentgen Ray in Dermatology.**—Frank gives a general clinical and statistical résumé of his experience in the treatment of various forms of dermatoses by the *x*-ray. He is in accord with others as to the value of the *x*-ray in the eradication of epithelioma and cancerous degeneration of the skin, and that its value becomes more doubtful where the lesion is more deeply seated, involving the subcutaneous structures. Acne in its various forms has tenaciously resisted the most patient and persistent course of treatment. Frank does not hesitate to affirm, however, that the *x*-ray will accomplish what other measures have often failed to accomplish. Ten cases of chronic eczema of the palms of the hands were treated successfully with the *x*-ray; three cases were followed by a recurrence, which again readily yielded to a few renewed treatments. Similar good results were obtained in a chronic vesicular eczema of the hands due to wild ivy poisoning of 10 years' standing, in two cases of eczema of the auditory canal, and a number of similar, localized chronic conditions that had baffled ordinary therapeutic measures. In cases of hypertrichosis, the danger to the patient, the discomfort and the time consumed tend to discourage the use of the ray. More gratifying results were obtained in a few cases of sycosis of the most rebellious type, with multiple follicular abscesses. Frank attributes this not to the bactericidal influence of the ray, but to its complete depilatory action. In psoriasis, of which he has treated a few cases only, he has succeeded in causing the infiltrations to disappear without difficulty, and so far without a recurrence. In keloids and cicatrices, he has found the action of the Roentgen ray a most pronounced one, the lesions disappearing after about fifteen treatments. A few warts were beneficially acted on in like manner. Frank concludes that in the *x*-ray we possess a valuable adjunct in the treatment of dermatoses, but unbounded enthusiasm for the results obtained should not blind us to the equally good results obtained by the ordinary and harmless methods. A combination of the *x*-ray with the ordinary methods of treatment enhances the therapeutic value of the former.

American Journal of Orthopedic Surgery, Philadelphia.

October.

55 *Ultimate Results of Mechanical Treatment of Pott's Disease in Dispensary Practice. Henry Ling Taylor.
56 A Study of the Amount of Correction of Deformity in Pott's Disease Obtained Within Plaster Jackets. Augustus Thorndike.
57 *The Treatment of Upper Dorsal Pott's Disease. James K. Young.
58 Analysis of 1,000 Cases of Static Foot Trouble. W. E. Blodgett.
59 Case Illustrating the Operative Treatment of Paralysis of the Serratus Magnus by Musle Grafting. A. H. Tubby.
60 *Typhoid Coxitis, with Report of a Case, with Skiagrams. John L. Porter.
61 *An Operation for the Cure of Chronic Bursitis; Especially Adapted to House-maid's Knee. Phil. Hoffmann.
62 Tuberculosis of the Abdominal Lymph Glands: Its Complications, Differential Diagnosis and Treatment. Charles F. Painter and Wm. G. Erving.
63 *Treatment of Round Shoulders by Forcible Correction. Robert W. Lovett.
64 An Improved Apparatus for the Treatment of the Deformity of Hip-Joint Disease by Weight and Pulley Extension. Albert H. Freiberg.

55. **Mechanical Treatment of Pott's Disease.**—Taylor cites 11 cases treated by mechanical support and usually by fixed plaster-of-Paris jackets for from four to eight years, after which, if the patient was considered free from active disease, a laced plaster-of-Paris corset was usually substituted. In the upper dorsal and cervical regions a jury-mast was added. One case was treated by the Taylor brace, and one by the Knight brace throughout; in several cases a Knight brace was used in the later stages. The jackets were changed every 10 or 12 weeks, unless the patient absented himself contrary to orders. Patterns were taken with the lead tape, and transferred directly to the pages of the histories by pencil in the usual way, the patient being in the prone position. The ages varied from 2 to 8 years; six patients were 3 years or under. In no case had the symptoms attracted attention for more than one year; in seven the duration was given as six months or under. In most instances the general condition, when observed, was good or fair and the deformity slight or moderate. Three had complicating bone disease, one in the radius and maxilla, one in the hip, and one in the knee. Two cases had spinal abscesses, one of which receded without opening. In none was paraplegia noted. In many instances the notes are defective as to the exact condition of the patient after the 10-year period. All but one or two were still under treatment and wearing support of some kind at the time of the last note. Of the cases which had left off support, one relapsed after a fall; in two support was reapplied after a year or two owing to pains, and but one was known to be cured, having been without support during eight years. In every case but one the final result showed a considerable increase in deformity. In this case, after an initial increase, there was a final decrease and practical obliteration of all deformity. The results as to deformity may be summarized as follows: Good, 1; fair, 5; poor, 5. The results in all cases but one was a marked kyphosis, and in about half the cases a large and disfiguring kyphosis. Taylor considers this group of cases as far too small to be more than suggestive, nor is it an indication of average results. At the same time, it bears out the writer's general impression that, while the ordinary jacket treatment in dispensaries affords great relief and is productive of much benefit, it does not usually quickly arrest the disease nor prevent very serious and disfiguring deformity even in young patients seen in the first few months of the disease and in otherwise good condition, and also that the results are far inferior to those obtained in private practice.

57. **Upper Dorsal Pott's Disease.**—For the treatment of this condition, Young recommends an apparatus which is made

over a cast which includes the head, neck and trunk. The patient is placed face down on a frame, stockinette is securely applied to all these parts and a plaster-of-Paris cast is made. From this an exact counter-cast is made, and from the counter-cast the felt or celluloid cuirass is constructed. The head portion is made removable from the body portion, but the entire cuirass is secured and reinforced by steel. The cuirass is secured to the body by broad webbing into which elastic webbing has been incorporated, and shoulder straps and a frontal band complete the outfit. It is applied with the patient lying on the face and secured in position before the patient is turned over. While the cuirass is being prepared, or if any indications occur for recumbency, the patient is placed in bed, on a wire frame bent backward, felt pads are placed under the deformity on either side and the patient is secured to the frame immovably by means of a specially constructed wheel couch. The patient can be taken into the open air daily. This couch permits the patient to lie in the full extension position. The advantages of this apparatus are that the deformity is reduced, that the paralysis quickly disappears, and that there is a complete restoration of function.

60. **Typhoid Coxitis.**—Porter says that involvement of the hip in the course of typhoid enteritis is an infrequent complication, one which usually develops late in the disease or even during convalescence. The pain is often severe, though the patient may only complain of slight pain or discomfort about the joint. Swelling develops slowly, and, on account of the thickness of the muscles about the joint, may progress to a considerable degree before being noticed. The first thing to call attention to the joint may be the fact that the patient can not lie on that side, or that he keeeps the thighs flexed. The one peculiar thing about these hip infections, says Porter, is the tendency to spontaneous dislocation of the joint, and it is this feature which makes typhoid coxitis such a serious condition. Little is known about the bacteriology of the condition. It is believed that the synovitis is sero-fibrinous in character and that, besides causing a distension of the joint, it produces an inflammatory softening of the acetabular margin and the pressure of the head of the femur, by contraction in a flexed and abducted position, causes a pressure atrophy of the outer part of the acetabular rim, permitting the head of the femur to slip slowly out. Early evacuation of the joint is the only satisfactory treatment. Two illustrative cases are cited.

61. **Cure of Chronic Bursitis.**—The operation advocated by Hoffmann consists of puncturing the bursa, thoroughly scarifying its walls, expressing its fluid contents, bringing its walls in contact and holding them so by means of a compress until their raw surfaces have grown together and have thus obliterated the cavity. It is especially adapted to the treatment of the condition known as housemaid's knee. An ordinary tenotome, having a long shank, or an especially devised instrument, is passed into the distended bursa at its base. With the sharp edge, its entire inner surface is marked with many fine cuts, after which the instrument is withdrawn and the bursa evacuated of its fluid contents through the small skin incision. A thick, wide pad of gauze is placed over the bursa and firmly bound down with strips of adhesive plaster overlapping one another and completely encircling the limb from an inch or two above the upper margin to the same distance below the lower margin of the bursa. Over this a muslin and a crinolin bandage are applied. A pad of cotton should be placed within the popliteal space beneath the plaster, to protect the prominent ham-string tendons and overlying skin from undue pressure. The raw bursal surfaces should be kept in contact until firm union has occurred Two weeks are sufficient. The adhesive plaster strips should be renewed or re-enforced whenever they appear loose; as a rule, every two or three days. No anesthetic need be given, nor need the patient be confined to bed or even use crutches during the after-treatment. In the past nine years, Hoffmann has operated on 104 cases of house-maid's knee. In two, the operation had to be performed twice, and in four three times, while in 98 it was primarily successful. The scarification must be thorough, the withdrawal of synovial fluid complete, and the compression quite firm to assure success.

63. **Treatment of Round Shoulders.**—Lovett presents a method of treatment which, in his hands, has produced improvement in cases of the resistant type, which had been, for the most part, for many years under gymnastic or mechanical treatment without marked benefit. The method consists of forcible hyperextension of the dorsal spine with forcing back the shoulders and, while the patient is held in the corrected position, a corrective plaster jacket is applied embracing the shoulders. The apparatus used consists of an oblong gaspipe frame of the ordinary pattern. Fastened to this near the middle and hinged so as to be raised to any degree is another section of gaspipe lying on the frame proper and of the same shape and size as the upper half of the frame. To this movable section is fastened, at right angles to it and movable on it, a gaspipe bridge rising about 18 inches from the movable section. When prepared for use, two strips of webbing, lying one over the other, run from each of the buckles at the bottom of the frame. The lower pair of these strips is tightly drawn and run to the buckles at the end of the movable section. The upper pair is loosely fastened to the bridge over the movable section. The cross-pieces are tightened and the patient laid face downward on the webbing strips. The thighs are flexed and the feet rest on the floor so that the lumbar spine is flattened. Two pieces of webbing are passed over the mid-dorsal region side by side, tied to the lower non-movable frame on each side. These furnish the resistance for the straightening of the spine when the upper end of the frame is lifted, carrying with it the head and upper chest. The upper part of the frame is lifted after the patient is in place and as much force is exerted as seems advisable. The movable part of the frame is finally raised and fastened in place and a plaster jacket applied. In three or four weeks this is replaced by a brace, and corrective exercises are begun. The brace used has some modification of the tempered uprights in common use. All that one can hope from this method, says Lovett, is to restore to the dorsal spine a more normal range of hyperextension and then to educate the muscles to retain the improved position. His results have been extremely gratifying.

Memphis Medical Monthly.

November.

65 Physiologic Action and Morbid Effects of the Coal-Tar Products and the Contrasted Action of Cold in Fever. F. W. Galloway.
66 Points of Interest in Obstetric Surgery. H. Lee Farris.
67 Obstinate Nasal Hemorrhage following Removal of a Septal Spur in a Hemophiliac. Richmond McKinney.
68 Neurasthenia—Diagnosis and Treatment. G. W. Penn.
69 Successful Reduction of Dislocation of the Shoulder Joint of Three Months' Duration. Alfred Moore.

St. Paul Medical Journal.

November.

70 History of Medicine. Jacob E. Schadle.
71 Hypertrophy and Inflammation of the Male Breast. A. R. Colvin.
72 Notes on 273 Labors. Christopher Graham.
73 The Diagnostic Significance of Pus in the Urine. M. C. Millet.
74 Heredity as a Determining Cause of Disease. R. M. Phelps.

Journal of Medicine and Science, Portland, Maine.

October.

75 Special Topography of Ureter and Right Colon, Hepatic Fixture and Transverse Colon. Byron Robinson.

Journal of the Michigan State Medical Society, Detroit.

November.

76 Chorioepithelioma Malignum. Report of a Case. Wm. F. Metcalf and H. E. Safford.
77 General Tic—with Report of a Case. C. C. Wallin.
78 Differential Diagnosis of Conditions Simulating Appendicitis. Louis J. Hirschman.
79 Dysmenorrhea. Jeanne C. Solis.
80 Interpretation of Radiographs. P. M. Hickey.

Northwestern Lancet, Minneapolis.

November.

81 Pneumonia Pathology; Empyema as a Complication. Lyman Skeen, Jr.
82 Professor Dunbar's Hay-Fever Investigations. Herman Bouman.
83 Surgical Gynecology. A. E. Benjamin.
84 Some Empyemas of the Maxillary Sinus. Robert A. Campbell.

Buffalo Medical Journal.

November.

85 The Physician in the Making. T. H. McKee.
86 Some of the Common Forms of Headache. A. B. Frazee.
87 Status Lymphaticus; Its Relation to Sudden Death. Edgar R. McGuire.

Journal of the Kansas Medical Society, Lawrence.

November.

88 A New Method of Isolating Micro-Organisms. M. A. Barber.
89 Dispensing Drugs. H. L. Clarke.
90 Evolution. The Evolution of Man, Physical, Mental and Moral—Its Hindrances and Helps. (Continued.) W. L. Schenck.
91 The Eye in General Diseases. J. E. Minney.

Atlanta Journal Record of Medicine.

November.

92 The Stomach Tube—Its Origin, Use and Abuse. L. Amster.
93 Georgia Commission on Tuberculosis. Charles Hicks.
94 Is Tuberculosis a Disease of Environment Only? H. McHatton.
95 Remarks on Gonorrhea. W. L. Champion.

Medical Examiner and Practitioner, New York.

November.

96 Concerning Reports on Rheumatism, Diseases of the Heart and Impaired Vision. J. F. Raub.
97 The Modern Treatment of Neurasthenia. G. W. Tobias.
98 Early Deaths in Life Insurance. F. A. Smith.
99 Medical Examination of Applicants for Life Insurance. C. Theodore Williams.
100 Electricity in the Diagnosis and Treatment of Diseases of the Brain and Spinal Cord. A. D. Rockwell.

Kansas City Medical Index-Lancet.

November.

101 Postpartum Hemorrhage. J. Reed Lytle.
102 Puerperal Infection. F. T. Van Eman.
103 The Solar Plexus and Its Importance in Diagnosis. W. M. Clemmons.
104 How to Avoid Damage Suits in Fractures. V. Berry.
105 Mercuric Chlorid Poisoning—Report of a Case. N. A. Drake.

Northwestern Lancet, Minneapolis.

November 15.

106 The Life and Character of the Late James H. Dunn, M.D. William Asbury Hall.
107 Some Observations on Movable Kidneys. A. W. Abbott.
108 Relation of Feeding to Infant Mortality. S. G. Eghian.

Medical Bulletin, Philadelphia.

November.

109 Aids to the Recognition of Disease. Judson Daland.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

November 19.

1 Ricardus Anglicus and the Teaching of Anatomy in the Middle Ages. Joseph Frank Payne.
2 Address, Section of Dental Surgery, British Medical Association. E. A. Bevers.
3 Discussion on Oral Sepsis as a Cause of Disease in Relation to General Medicine. Wm. Hunter.
4 A Preliminary Note on the Pathology of Oral Sepsis. Kenneth W. Goadby.
5 The Surgical Aspect of Oral Hygiene and Oral Sepsis. Rickman J. Godlee.
6 Fulminant Caries Alveolaris Specifica. Joseph Arkovy.
7 Case of Melanotic Sarcoma in a Child of Three Months. Wm. H. Battle.
8 Influence of the Growth of Bone on the Positions of the Teeth. J. G. Turner.
9 The Care of Children's Mouths. Sidney Spokes.
10 Physical Degeneration in Relation to the Teeth. J. Sim Wallace.
11 A Suggested Method of Mounting Anatomic Specimens for Museum Purposes. C. J. Patten.
12 A Contribution to the Origin of Embryonic Leucocytes. J. H. Bryce.
13 Discussion on Giants and Dwarfs. D. J. Cunningham.
14 Cranio-cerebral Topography. Richard J. A. Berry and Hubert D. Shepherd.
15 Observations on the Development and Morphology of the tail. A. H. Young and S. Robinson.
16 The Arrangement of the Maternal and Fetal Glycogenic Cells in the Placenta of the Mouse. J. W. Jenkinson.
17 Three Cases of Chorion-epithelioma. R. F. C. Leith.
18 *An Early Case of Chorion-epithelioma Following Hydatidiform Mole; Vaginal Hysterectomy; Recovery. Smallwood Savage.
19 *Case of Chorion epithelioma. Christopher Martin.
20 *Case of Malignant Chorion epithelioma. Thomas Wilson.
21 *Case of Deciduoma Malignum (Chorion-epithelioma). C. W. Windsor and J. S. Fairbairn.

18. **Chorion-Epithelioma Following Hydatidiform Mole.**—A case is reported by Savage, occurring in a woman, aged 50, the mother of eight children, the last born seven years ago. For the last few years menstruation had occurred irregularly, at intervals of from two to eight weeks, and it was scanty. For two months she complained of dyspnea and progressive wasting, with pains, tenderness and swelling of the abdomen, especially on the right side. The breasts had been getting larger; there had been no vomiting, but the patient could not eat anything. On examination, the pulse and temperature were found raised and the general condition was bad from weakness and anemia. The abdomen was enlarged by a tumor rising up out of the pelvis and reaching to one finger's breadth of the umbilicus. It was higher on the right side. A fluid thrill was felt in parts and it was somewhat tense. A souffle was heard all over it, but not a fetal heart sound. A blood clot lay in the vagina, the vaginal walls and cervix were swollen and edematous, the veins of the vulva were enlarged. The tip of the finger could be inserted through the internal os, but only a soft, doughy mass was felt. Ballottement could not be obtained. The tumor was made out to be uterine, but the nature of the enlargement was not clear. As the general condition was bad, and as the examination brought on hemorrhage, Savage inserted some gauze into the cervix and gave ergot in the hope that the uterus might empty itself. On the following day he removed, by means of a finger and a blunt curette, about four and a half pints of cysts of the hydatid mole, mixed with blood and clot; the cysts were of varying sizes, up to that of a small walnut. The uterus contracted down to about four inches in its cavity length. After the operation, hemorrhage of slight amount lasted for five days; convalescence soon took place. One month afterward, a continuous slight blood discharge commenced, lasting a fortnight. Later, profuse hemorrhage occurred, rendering the patient anemic and faint. The vagina was promptly plugged with iodoform gauze. On examination, nothing was felt by the abdomen. The uterus was found to be somewhat enlarged, thickened, and it felt heavy; the cervix was opened enough to admit the tip of the index finger; both lips were edematous. Eleven weeks after the removal of the mole, Savage performed a vaginal hysterectomy, and five months afterward the patient was in excellent condition, with no sign of recurrence. Microscopic examination of the tumor showed it to be a chorion-epithelioma.

19. **Chorion-Epithelioma.**—Martin's case gives the following history: Patient, 50 years old, had eleven children and three miscarriages. For twelve weeks she had constant hemorrhage through the uterus. There was no other discharge and the blood was never offensive. There was some shortness of breath on exertion, but otherwise the patient felt well. The examination of the abdomen was negative. Per vaginam, the uterus was found enlarged, the cervix soft, spongy and granular, but without any growth or ulceration. It was patulous, but did not admit the finger. The uterus felt as large as the body of a uterus two months pregnant. It was quite mobile and there were no signs of disease of the uterine appendages. A diagnosis of cancer in the body of the uterus was made, and a vaginal hysterectomy was performed in the usual way. On laying open the uterus, it was found to contain a soft, friable, fungating growth about the size of a small hen's egg, growing from the endometrium. The patient made a good recovery. The microscope disclosed a typical chorion-epithelioma.

20. **Malignant Chorion-Epithelioma.**—The history of Wilson's case differs from the two preceding ones in that the patient was only 22 years old and single, and succumbed to the disease one year after she was delivered of a hydatidiform mole. The physical findings were the same as in Martin's case.

21. **Deciduoma Malignum.**—The case of Windsor and Fairbairn followed a full-term delivery. Recovery from the confinement was not complete, the patient remaining anemic and feeble, and throughout the illness there was some sanguineous discharge. About six months after the confinement, the uterus was found enlarged, and later the discharge increased and became offensive. A vaginal hysterectomy was performed, convalescence from which was complicated by the development of a subclavicular abscess, and six weeks after the operation the patient died, with symptoms of severe paroxysmal headache,

abdominal pain, vomiting, and symptoms of general collapse. The microscopic findings were typical.

The Lancet, London.

November 19.

22 Some Practical Points in Abdominal Surgery; with Special Reference to a Simple Technic for Appendicectomy and Intestinal Anastomosis. Frederick Holmes Wiggin.
23 *Infantile Syphilis. George F. Still.
24 Clinical Observations on the Anesthetic Effects of Methyl Oxide, Ethyl Chloride and the So-called "Somnoform." (To be continued.) Frederick W. Hewitt.
25 Non-fatal Rupture of Aortic Aneurism. Charles H. Melland.
26 *The Action of Perchlorid of Iron in Blood Poisoning and Other Disorders. P. W. Latham.
27 Case of Encephalitis Cerebelli. Frederick Taylor.
28 Hill Diarrhea in the Plains. P. A. Nightingale.

23. **Infantile Syphilis.**—Still says that in the treatment of this condition there is little choice of drugs; the only question is in what form should mercury be administered, in what dose, and for how long. In his opinion, gray powder is the best. Combined with aromatic chalk powder, a dose of half a grain can usually be given three times a day without causing diarrhea; but if there is any looseness of the bowels, Dover's powder may be given with the gray powder in doses of ⅛ of a grain for infants over 3 months of age and ¼ of a grain at the age of 6 months. He has also used the liquor hydrargyri perchloridi, but found that it is more liable to cause diarrhea; an infant a month old can take from 5 to 10 minims three times a day. Inunctions of unguentum hydrargyri may be used either alone or, in severe cases, in addition to the internal administration. A piece of the size of an average green pea—a rough measurement of 15 grains—is gently rubbed over the abdomen or the inside of the thigh or arm at night and left covered over with a flannel bandage until the following morning, when it is washed off; this to be repeated every night unless the skin shows signs of irritation, as it occasionally does. Still says that he knows of no condition in which there is anything to commend the intramuscular or intravenous injections of iodin or mercury for infantile syphilis. They involve an absolutely unnecessary infliction of pain and an equally unnecessary risk of troublesome inflammation. Iodids should be used internally in addition to mercury. The disappearance of symptoms is no indication for discontinuing treatment. It should be continued for at least six months after the disappearance of active symptoms, and it may be necessary to continue it for a year or more, if symptoms tend to recur when treatment is omitted.

26. **Perchlorid of Iron in Blood Poisoning.**—Lathan again calls attention to the efficiency of the tincture of the perchlorid of iron and chlorin in the treatment of various forms of blood poisoning. The most judicious plan is to give moderate doses, cautiously watching their effect and administering them more frequently if the patient will bear them. If not, continue moderate doses and, if further antiseptic action is required, give chlorin water or euchlorin internally, alternately with or in the intervals between the doses of iron. The chlorin water is prepared by adding 20 grains of powdered chlorate of potassium and one dram of strong hydrochloric acid to 20 ounces of water. (The author fails to mention doses.)

Annales de l'Institut Pasteur, Paris.

Last indexed XLII, page 983.

29 (XVIII, No. 3.) Etude de la spirillose des poules (of poultry). C. Levaditi.
30 Le passage du virus rabique a travers les filtres. Remlinger.
31 Coagulation de l'amidon (of starch). A. Fernbach and J. Wolff.
32 Etudes sur les microbes nitrificateurs. E. Boullanger and L. Massol.
33 (No. 4.) Suite d'expériences relatives au phénomène de l'agglutination des microbes. C. Nicolle.
34 2 cas de guérison de la rage expérimentale chez le chien (recovery of 2 dogs from rabies). Remlinger and Mustapha Effendi.
35 Recherches sur les ferments des maladies des vins. P. Mazé et P. Pacottet.
36 Appareil pour l'agitation continue des cultures. E. Bodin and E. Castex. Illustrated.
37 Dispositif pour stériliser le catgut à l'autoclave. Triollet.
38 Etudes d' hydrographie souterraine. E. Duclaux. (Concluded.)
39 (No. 5.) Recherches sur le mode d'utilisation du carbone ternaire par les végetaux et les microbes. P. Mazé.
40 Contribution a l'étude de la pathogénie de la crise dans la pneumonie fibrineuse. N. Tchistovitch.
41 Cas d'appendicite chez le chimpanzé. M. Weinberg.
42 Une méthode de culture des microbes anaérobies. J. Bordet.

Annales des Mal. Génito-urinaires, Paris.

Last indexed XLII, page 1697.

43 (XXII, No. 5.) Les polypes de l'urèthre chez la femme (in the female). R. Grégoire.
44 Traitement des rétrécissements de l'urèthre sans pression sur les parois adjacentes saines (piston dilator for strictures). P. Bakaleinik.
45 Beniqué laveur (irrigator). J. de Sard.
46 (No. 6.) *La torsion du cordon spermatique (bistournage spontané). J. Vanverts.
47 Volumineuse tumeur du scrotum (lymphangiome kystique). Gaudier.
48 (No. 7.) Des hémorrhagies spontanées de la prostate. B. Motz and L. Suarez.
49 Contribution au traitement des uréthrites chroniques. A. Cariani.
50 L'incontinence d'urine essentielle. Revel. Abstract.
51 La séparation de l'urine des 2 reins. G. Luys. Abstract.
52 (No. 8.) La Cystite chronique rebelle. E. Garceau. (Boston). Translated.
53 Kystes hydatiques pelviens et retention d'urine. H. Hartmann.
54 Le catheterisme urétéral therapeutique. Rafin.
55 (No. 9.) Un cas rare de calcul vésico-prostatique. F. Cathelin et M. Villaret.
56 Un nouvel aero-uréthroscope. Wasserthal.
57 (No. 10.) Traitement rapide du bubon suppuré par l'incision, l'expression et la suture immédiate. E. Legrain.
58 (No 11.) *Rupture of Bladder.—Des ruptures intrapértonéales de la vessie sans fractures du bassin dans les contusions abdominales. C. Dambrin and E. Papin. (Concluded.)
59 *Etude expérimentale et clinique de l'exclusion renale. G. Gayet and P. Cavaillon. (Concluded.)
60 Taille hypogastrique modifiée pour arriver à voir aisément les orifices urétéraux dans la vessie ouverte. Rochet and Ruotte.
61 Contribution à la pathogénie et au traitement de la neurasthénie observée en certains cas de néphroptose. L. Ruggl.
62 (No. 12.) Cure radicale du cancer de la prostate. A. Pousson.
63 Déférentite tuberculeuse fistulisée, d'origine prostatique. E. Pillet.
64 Note à propos de 12 cas de division endo-vésicale des urines des deux reins (segregation of urine). Cathelin.
65 Traitement abortif de la gonorrhée. C. Engelbreth.

46. **Torsion of Spermatic Cord.**—Vanverts concludes from a study of 44 recorded cases that if the testicle is retained, it is impossible to reduce the torsion by manipulation. If the condition has lasted more than 24 hours, castration is the only recourse. If the testicle is in the scrotum, reduction of the torsion by manipulations may be possible if done early. If not successful in the first few hours, surgical intervention is required.

58. **Intraperitoneal Rupture of Bladder.**—Seventy-five cases of surgical intervention on this account are analyzed from the literature, and 3 unpublished cases added. There were 44 recoveries and 34 deaths, a mortality of 43.5 per cent., and during the last ten years of only 20.5 per cent. The symptoms, etc., are studied in detail. Laparotomy and suture are the only treatment.

59. **Exclusion of Kidney.**—This work issues from Jaboulay's clinic and 2 cases of exclusion of one kidney are reported. The results demonstrate that this is a harmless operation, which fact has been further confirmed by numerous experiments on animals. The indications in one case were a suppurating lumbar fistula, pyelonephritis and incipient cystitis. The patient was practically cured by ligation of the ureter from the infected kidney.

Archiv f. path. Anat., Etc., Virchow's, Berlin.

Last indexed page 1507.

66 (CLXXVII, No. 3.) Ueber Knochenbildung in Lymphknoten und Gaumenmandeln (bone formation in lymph ganglia and tonsils). O. Lubarsch.
67 Ueber Knochen- und Knorpelbefunde in den Tonsillen (bone and cartilage in tonsils). A. Ruckert.
68 Nochmals die Pigmentfrage. E. Neuman.
69 Anatomische Befunde in einem Falle von Myxödem. A. J. Abrikossoff.
70 Ueber Lebercirrhose und Blutkrankheiten (liver cirrhosis and blood affections). F. Bleichroeder.
71 Fall von pseudorhachitischer hämorrhagischer Skeletterkrankung bei einem jungen Hunde (in dog). W. Stoeltzner.
72 Ueber die Folgen der Markkegelobliteration der Kaninchenniere (rabbit kidney). Tollens.
73 Ueber die Veränderungen der arteriellen Gefasse bei interstitieller Nephritis (changes in arteries). P. Prym.
74 Zur Frage der Aortitis syphilitica. Fahr.
75 Ueber die fibrinösen Gerinnungen an der placentaren Fläche der Chorion (coagulation). J. Biland.
76 Intraabdominelle Hernie der Bursa omentalis bei geschlossenem Foramen Winslowii. E. Schwalbe.
77 Menschentuberkulose vom Aussehen der Rinderperlsucht (human simulating bovine tuberculosis). J. Ipsen.

Berliner klinische Wochenschrift.

78 (XLI, No. 44.) *Ueber Serum-Behandlung beim Puerperal-Fieber. E. Bumm.
79 *Das Coecum mobile. T. Hausmann.
80 Zur Theorie der Osteomalacie. Zugleich zur Lehre von den Krankheiten der Schilddrüse (thyroid). E. Hoennicke.
81 *Untersuchungen über einige Immunitäts-Fragen. A. Wolff. (Commenced in No. 42.)
82 *Quinin Prophylaxis on Large Scale in German Africa. Ziemann, Berg and others. Abstracts.
83 (No. 45.) Eine Beziehung des Lecithins zu Fermenten. E. Reiss.
84 Ueber den Einfluss von Kaltreizen auf die Arterien (cold stimuli to arteries). M. Herz.
85 *Intestinal Tuberculosis in Children.—Ueber Darmtuberculose der Kinder in Waldenburg (Schl.). R. Richter.
86 Ueber den diagnostischen Werth cytologischer Untersuchungen von Exsudaten. C. Preisich and H. Flesch. (Commenced in No. 44.)

78. **Serum Treatment of Puerperal Fever.**—After ten years of testing the various makes of antistreptococcus serum, Bumm finds that the serum prepared by inoculation with human material is the most effectual in controlling puerperal fever. He here reviews his experience in general and especially the results observed in 32 cases of severe puerperal infection. The impression derived is that a septic puerperal process, confined to the uterus, is unmistakably influenced by antistreptococcus serum injected subcutaneously. He shrinks from the intravenous route since observation of a serious mishap in one instance. In 4 particularly striking cases of high fever, but no phagocytosis, phagocytosis occurred 12 hours after the injection of serum, very intense, the leucocytes incorporating the streptococci with great avidity. The serum evidently sustained and re-enforced the natural defensive processes which, without it, would have been unable to cope with the infection. In order to keep watch of the phagocytosis induced by the serum, the secretions must be examined repeatedly, as the process occurs abruptly and does not last long. When the septic process has spread beyond the uterus, none of the serums available are powerful enough to affect it in the slightest. Consequently, their use should be restricted to the uncomplicated cases of septic streptococcus endometritis.

79. **Movable Cecum.**—Hausmann warns that a movable cecum may cause ileus and other disturbances attributed to other organs. Whenever he palpates an abnormally movable cecum, he always informs the subject of the finding and bids him call the physician's attention to the abnormal play of the gut.

81. **Serum Prophylaxis and Treatment.**—Wolff's conclusions from his extensive research and reasoning are to the effect that the best prospects from the use of bactericidal serums are from the standpoint of prevention. Especially in the streptococcus domain are the prospects most encouraging for successful preventive immunization. When general streptococcus infection is feared, as, for instance, after opening an abscess in the tonsils, after operations on the nose, after abortions, severe deliveries, etc., prophylactic use of the antiserum may prove very useful. From the therapeutic standpoint, we can hope for success only when the serum can be given during the stage of incubation, before the bacteria get the upper hand. Early diagnosis, during the phase of incubation, will enable serum treatment to be applied in time. After this is past, little can be hoped from it in the present state of our knowledge.

82. **Quinin Prophylaxis of Malaria.**—Ziemann's report states that 24 of the 25 control subjects who took no quinin had malaria fever, generally very severe, and the twenty-fifth had malaria in the latent form. Thirty-six per cent. died. Of 70 who submitted to an unsystematic quinin prophylaxis, only 6 died and only 6 had to be sent home on account of malaria (from Kamerun). Of the 69 who took systematic prophylactic quinin treatment, only 3 died and only 2 had to be sent home. The regular prophylaxis consisted of a gram or half gram dose of quinin every third, fourth or fifth morning, after breakfast, accompanied by 1 gram of potassium bromid, if the subjective disturbances were annoying. More seemed to depend on systematic regularity than on the dose or interval.

85. **Intestinal Tuberculosis in Children.**—Richter practices in a mining district and states that tuberculosis of the intestines and mesenteric glands is very prevalent among the children, especially between the ages of 1 and 4. The onset is frequently sudden; the children become emaciated, with a chalky pallor, diminished appetite, abdominal pains and tenderness in the umbilical region, headaches, restless sleep and occasionally slight evening fever. The glands in the neck become enlarged in the majority of cases. In exceptional cases, diarrhea is noted. The affection runs a chronic course, and when the subjective symptoms disappear, the child is left weak and pale for a long time. Only 7 terminated fatally out of a very large number of cases that came under his observation, all with the identical clinical picture. Improved hygiene has reduced the number of cases and recovery is more rapid. It seems as if the intestinal tuberculosis in youth confers immunity later to pulmonary tuberculosis, as the latter is comparatively rare among the miners and their families. The deaths from tuberculosis are only 6.86 per cent. of the total mortality, while the proportion in Berlin is 12.3, and in Breslau 14.53 per cent.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed page 1348.

87 (LXXXI, Nos. 1-2.) *Methodisches and Technisches zur Orthodiagraphie. F. Moritz.
88 Ueber Urotropin, Methylenzitronensäure und methylenzitronensaures Urotropin (Helmitol, Neuurotropin). A. Nicolaier.
89 Agglutination bei Autoinfektion mit besonderer Berücksichtigung des Icterus. H. Lüdke.
90 *Zur symptomatologie der Aortensklerose. A. Bittorf.
91 Zur Kenntnis des Bence-Jones'schen Eiweisskörpers (albumose). L. Lindemann. One case.
92 *Ueber chronische Veränderungen des Pankreas bei Arteriosclerose und ihre Beziehung zum Diabetes mellitus. G. Hoppe-Seyler.
93 Ueber die chemische Zusammensetzung von tuberkulosem Käse (tuberculous caseous products). E. Schmoll.
94 (Nos. 3-4.) Der Eiweissstoffwechsel bei der Alkaptonurie (albumin metabolism). W. Falta.
95 In What Form Is Retained Nitrogen Utilized?—In welcher Form kommt aus der Nahrung retinierter Stickstoff im Organismus zur Verwendung. H. Lüthje and C. Berger.
96 Ueber die Zählung der Blutplättchen im Blute des Menschen und ihr Verhalten bei pathologischen Zuständen (blood plate count). E. Helber.
97 Oxyuris vermicularis in der Darmwand (intestinal wall). O Wagener.
98 Ueber atelektatische Bronchiektasie. E. Edens.
99 Nierenveränderungen bei experimenteller Hemoglobinurie (kidney changes). L. Levy.
100 Experimentelle Untersuchungen über den N. depressor. C. Hirsch and E. Stadler.
101 *Zur Kenntnis der Spezifität der Präzipitine. H. Kluck and R. Inada.

87. **Orthodiagraphy.**—The Greek term ortho means straight, and it has been applied to Roentgen inspection of the trunk from a point directly above. The views thus obtained offer many interesting peculiarities. Moritz describes them and explains the data thus obtained.

90. **Symptomatology of Sclerosis of the Aorta.**—Bittorf reviews in detail the various symptoms noted in 54 cases of sclerosis of the aorta. Subjective disturbances were not noted in all the cases, and they were generally due to the associated imperfect nourishment of the organs. To this cause he ascribes the palpitations, vertigo, especially when caused by abrupt changes of position or copious meals, buzzing in the ears, weakness in the arms, intermittent limping, etc. The average age was 55.6, but the syphilitics averaged ten years younger. The majority of the subjects were pale; a few had red faces. The heart was hypertrophied in 24, and this was suspected in 22 others. In 49 cases there was a distinct area of dullness corresponding to the shadow to the right of the sternum in dorsoventral fluoroscopy. The shadow on the left of the sternum is not accompanied by dullness, as the aorta at this point is too far below the anterior wall of the thorax.

92. **The Pancreas in Arteriosclerosis and Its Relation to Diabetes.**—In 9 out of the 18 cases of arteriosclerotic changes in the pancreas observed by Hoppe-Seyler, glycosuria had been evident in 9. The arteriosclerotic lesions were much more pronounced in the cases accompanied by glycosuria. The Langhans islands were always affected in the latter, and

proportionately to the intensity of the diabetes. The lesions in the diabetic subjects always predominated in the tail of the pancreas. His experience corroborates the assumption that the principal difference between lesions originating in the vessels and those originating in the efferent passages is that, with the former, the sugar metabolism is disturbed, while with the latter the production of pancreatic ferments suffers most. Treatment of arteriosclerotic subjects with diabetes is preeminently dietetic, with mild laxatives, courses of mineral waters, iodin preparations in small amounts long kept up and arsenic as needed. The dieting should not be too strict, as a little sugar is better than loss of appetite and strength.

101. **Specific Action of the Precipitins.**—The "biologic blood test," or specific albumin reaction not only tells the species, but also serves to differentiate various kinds of albumin from the same species of animal. It is thus possible to distinguish between a solution of the white and the yolk of the egg, etc. The yolk gives a stronger reaction than the albumin, possibly owing to the larger proportion of lecithin or phosphorus.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

102 (XXX, No. 44.) *Principles of Medicinal Action.—Eine wesentliche Grundlage der Arzneiwirkungen, besonders der Desinfektionsmittel. L. Lewin.
103 *Iodometric Test for Sugar.—Ueber quantitative Bestimmung des Harnzuckers unter besonderer Berücksichtigung der Iodometrischen Zuckerbestimmung. H. Citron.
104 *Artificial Abscesses.—Ueber die künstliche Eiterung nach der Methode Fochiers bei pyämischen Prozessen. P. Bröse.
105 Fall von Kehlsackbildung am Halse (Laryngocele Virchows). Herhold.
106 *Behandlung der Knochenbrüche (fractures). W. Liermann. (Commenced in No. 49.)
107 Stypticin gegen hämorrhagische Chorioiditis. M. Peschel.
108 *Exstirpations- und Operationsfeder (operating pen). Dreuw.

102. **Medicinal Action.**—Lewin warns against routine medication and routine disinfection, to the neglect of the fundamental principles of the action of drugs. Through-and-through contact is an indispensable condition for penetrating and durable action. The animal body casts off as rapidly as possible all foreign matter which it is unable to assimilate. Unless there is an affinity between the tissue and the drug, it is expelled without delay. Even when the drug is circulating in the blood, and is thus theoretically brought into contact with all the tissues, the contact is of the briefest. The drug is hurried along in the blood and expelled at the earliest possible moment by every available route.

103. **Quantitative Tests for Sugar in Urine.**—Citron lauds Fehling's test as the simplest and most reliable means to determine the amount of sugar in the urine. It should not be estimated by the color reaction, but by determination of the amount of unreduced copper sulphate in the filtrate. This is done by Lehman's technic, which is based on the fact that every molecule of copper sulphate liberates one atom of iodin. Allihn's tables show the amount of sugar which corresponds to the proportion of copper reduced. Thus modified, the test surpasses in delicacy the polarimetric test and should supplement the latter when other optically active substances are suspected. Even the novice can complete the test in five to ten minutes, and when large amounts are at hand, the test is still more rapid. Citron gives an illustration of the small case with automatic burette, vials, etc., which he has found most convenient for the test.

104. **Fixation Abscesses.**—Bröse reports a case of severe pyemia treated by injection of 5 c.c. of turpentine oil in the left calf. The patient was a iii-para of 25, and the pyemic process followed an abortion. No local process could be discovered and no micro-organism could be isolated from the blood, but the fever kept high and the general condition grew constantly worse. As the fixation abscess developed the fever subsided to complete recovery. The suppuration continued for some little time in the abscess after it had been evacuated. The pus was always sterile and no hyperleucocytosis was detected. Fochier, the originator of the method, seldom injected more than 2 c.c.; it is possible that the large amount used in this case may have been a factor in the results.

106. **Treatment of Fractures.**—Liermann advocates mobilization and massage of a fracture at the earliest possible moment. This shortens the length of treatment and restores conditions to normal with remarkable promptness. The physician should be guided by the Roentgen findings, but he warns that the Roentgen plate should be regarded merely as a medical diagnostic aid. The plate should remain in the hands of the physician; it is generally unnecessary to have a finished picture made from it, and above all things, such a picture or plate should never be given to the patient for him to misconstrue. The best of all appliances for massaging and treating fractures is the "surgical hand," and the general practitioner should seek to acquire this. He gives the details of treatment of fractures on these principles, adding that the quintessence of treatment is to forbid the use of the limb at first, but to apply rational massage and mobilization during the bed-rest imposed. The effusion is much more rapidly absorbed and the strain of the muscles aids in restoring the fragments to place and in their consolidation.

108. **Operating Pen.**—See abstract on page 1508.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed page 1349.

109 (LXXIV, Nos. 1-2.) *Ueber schädliche Chloroform-Nachwirkung (injurious after-effects). Vorderbrugge.
110 *Die Enterostomie in der Prophylaxe und Therapie der Peritonitis. E. Gebhart.
111 Zur Luxation des I. Metatarsalknochens. G. Fischer.
112 *Ueber Epiphysenlösungen, Frakturen und Luxation in Bereiche des Ellbogengelenkes und ihre Behandlung nach der Bardenheuerschen Methode (in elbow region). F. Stolle.
113 *Ueber Luxation des Ulnaris. E. Haim.
114 Ueber die End-Resultate der Radikal-Operationen der Unterleibsfrüche (hernia). F. Hahn.
115 *Forward Displacement of Urethra.—Zur Technik der Dislozierung der Harnröhre bei der Hypospadie und anderen Defekte und Verletzungen der Harnröhre. C. Beck.
116 Radikal-Operation des Ductus omphalo-entericus persistens. M. Sträter.
117 Zur Kasuistik und Therapie der Struma lingualis. O. Riethus.
118 Experimentelle Untersuchungen über die Gefässwirkung von Suprarenin in Verbindung mit örtlich anästhesierenden Mitteln (with local anesthesia). A. Läwen.
119 * Blood Pressure in Spinal Anesthesia. Das Verhalten des Blutdruckes bei der Lumbal-Anästhesia. M. Mori.
120 Ueber Operationen bei wechselnden Tages- und Röntgenlicht (alternating day and Röntgen light). Holzknecht and Grünfeld.

109. **After-Effects of Chloroform.**—Vorderbrugge reports from Dantsic 2 cases of serious after-trouble from moderate use of chloroform. The subjects were children, 10 and 5 years old, and less than 30 gm. of chloroform in one case and less than 12 gm. in the other had been used. After some time symptoms of collapse were noted, fatal in one case. The necropsy revealed fatty degeneration in heart, liver and kidneys. In the other case albuminuria and hemoglobinuria were long persistent, but the child finally recovered. The hemoglobinuria suggests that the assumption may be correct which ascribes the injury from chloroform to destruction of the red corpuscles. Trouble may be anticipated after chloroform when the pulse shows great disturbance while the temperature remains approximately normal, with albuminuria and other signs of acute parenchymatous nephritis, vomiting, icterus and brain symptoms.

110. **Enterostomy in Prophylaxis and Treatment of Peritonitis.**—Gebhart attributes the serious outcome in many cases of diffuse suppurative peritonitis to absorption of the stagnating bowel contents in the paralyzed intestines. He cites 8 cases from his own experience in which he made a temporary opening into the bowel as a prophylactic or curative measure, and always with good results. He commends the procedure as a prophylactic operation in peritonitis of intestinal origin and in general sepsis and in all cases of paralytic ileus or occlusion of unknown etiology. Also as a palliative operation in case of debility forbidding further operation. It is sometimes advisable after perforation to suture the perforated point to the skin. The fecal fistula usually heals spontaneously, in from seven to eight weeks at farthest.

112. **Elbow Injuries Treated by Bardenheuer's Technic.**—Stolle gives radiograms of a large number out of the 140 cases he reports. The Bardenheuer technic method of extension in elbow injuries is described in detail and its application. The technic is easily comprehended from the illustrations. In 23 cases the dislocation was complicated by fracture in 14.

113. **Luxation of the Ulnar Nerve.**—Haim reports 2 cases and adds 12 new ones to the 40 collected from the literature in 1896. The subjects were all over 15 years old, and a congenital predisposition to extreme movability of the nerve was apparent in some, but cubitus valgus seemed to be the chief factor in its production during a traumatism. In 10 cases the luxation caused no symptoms of any kind. The pain is usually severe at the time of the accident, and dull pains persist with paresthesia in the arm or even paralysis. In treatment the preferable method is to fasten the ulnar nerve to the periosteum and adjacent connective tissue of the fossa between the olecranon and the epicondyle. Two cases on record were treated by resection of the nerve, and the condition was aggravated. The nerve becomes dislocated because it is too short, and resection is contraindicated.

115. **Forward Displacement of Urethra.**—Beck's technic for the treatment of hypospadia is well known in this country. He here emphasizes certain minor points which aid in the success. He has only had a single failure in his extensive experience, and in this case the patient tore out the catheter and suture himself the day after the operation. Beck has found the method applicable also to women and for various kinds of defects and injuries of the urethra.

119. **Blood Pressure in Spinal Anesthesia.**—In 16 cases in which spinal anesthesia was induced with a combination of suprarenin and cocain, the blood pressure was found augmented at first, but later sank slightly below normal. In 12 others it remained high throughout. In 8 no influence was perceptible. In 9 there was a marked drop in the blood pressure to such an extent as to threaten collapse in some of the subjects. This was due probably to the combination of three factors, the cocain, the operation for which it was injected, and the patient's excitement. The details of the 50 cases are tabulated. The work issues from Bier's clinic.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed page 1268.

121 (XIX, No. 6.) 2 seltene Fälle von Tubar-Gravidität. J. Voigt.
122 2 solide Ovarial-Embryome. H. Rothe.
123 Blood Supply of Contracting Uterus.—Ueber die Blut-Versorgung des sich kontrahierenden Uterus. O. Schaeffer.
124 Drüsenfrage und Rezidive bei der Total-Exstirpation (the glands and recurrence of cancer). A. Mackenrodt.
125 Geschlechtliche Unempfindlichkeit (Anesthesia sexualis) der Frauen (in women). Nenadovics.
126 Anatomische Paten (historical sketch). G. Klein.
127 (XX, No. 1.) Zum Studium des graviden und kreissenden Uterus. F. d'Erchia.
128 *Zur Frage der Hyperemesis gravidarum. M. Graefe.
129 *Hyperemesis gravidarum. S. v. Zaborszky.
130 *Hyperemesis und Ptyalismus in der Gravidität. K. Baisch.
131 Sublamin als Hände-Desinfiziens. B. Krönig.
132 (No. 2.) Die Pathologie des Corpus luteum. (Concluded.) E. Santi.
133 Zum Mechanismus und zur Behandlung frischer Scheiden-Dammverletzungen (lacerations of vagina and perineum). A. Hengge.
134 Die Prophylaxe der Wochenbettsmorbiditat in der Schwangerschaft (puerperal morbidity). Kroemer.
135 *Ueber Blasensteine (bladder stones). W. Zangemeister.
136 Beitrag zur Statistik des inoperablen Uterus-Carcinoms. E. Liek.

128-130. **Hyperemesis Gravidarum.**—Graefe ascribes the incoercible vomiting to hysteria in many cases, and thinks that suggestion is an important element in treatment. The most important indication is the isolation of the patient. Zaborszky's experience has convinced him that it is due to a reflex neurosis in many cases. Interruption of the pregnancy does not always put an end to the vomiting. The vomiting persisted in 3 cases under his observation, all terminating fatally. The postmortem examination disclosed a cancer in the stomach, yellow atrophy of the liver or inflammation in the intestines as the unsuspected cause of the vomiting. Baisch does not accept either of these theories altogether. He regards the hyperemesis as a reflex phenomenon, a motor or secretory disturbance of the stomach function, the irritation proceeding from the periphery and transmitted through the vomiting center. The uterus, the nerve centers in the medulla or the stomach itself may be the points where the exaggeration of the reflex occurs, and consequently treatment should be applied to correspond for each individual case. In his experience the cases with the gravest prognosis were those accompanied by abnormal salivation. This is an objective sign of a severe central disturbance of the reflex excitability. In 2 such cases he interrupted the pregnancy, with a favorable outcome. The relations between the villi and the uterine wall are probably the primal cause of the disturbances. Suggestion is liable to reduce the reflex excitability in some cases. It is characteristic of hysterical vomiting that the digestibility of the food does not seem to have any influence on the vomiting.

135. **Stones in the Female Bladder.**—Zangemeister remarks that the clinical picture of stones in the bladder varies in men and in women. Foreign bodies are usually responsible for their formation, either as a nucleus or as inducing hemorrhages. Chronic catarrh of the bladder should always suggest the possibility of a stone, and the cystoscope be used, but *x*-ray examination is seldom necessary. Foreign bodies in the bladder should be removed as soon as possible, and no suture material should be used that is not readily absorbable. Colpocystotomy is easy, and the prognosis is so favorable that he prefers it as a routine procedure to sectio alta or even to dilatation of the urethra. The opening into the vagina heals rapidly. He makes a sagittal incision, cutting away from the sphincter. The details of 11 cases are tabulated. Out of 9,692 cases of stones in the bladder on record, only 205 were in women. The stone does not obstruct the urethra as it is so liable to do in men, and the vague pains from its presence are often referred to the genitalia and treated on a mistaken diagnosis. The disturbances are less pronounced than in men. The stone lurks in the side recesses and moves around so readily that it is difficult to palpate through the vagina. Incontinence may be the only symptom.

Münchener medicinische Wochenschrift.

137 (No. 44.) *Zur Hetol-Behandlung der Tuberkulose (cinnamic acid). O. Prym.
138 *Zur Behandlung der Lungen-Tuberkulose nach Landerer (cinnamic acid). F. Schrage.
139 *Meine Erfahrungen mit dem Anti-Tuberkulose-Serum Marmorek. H. Frey.
140 Ueber die paraportale Resorption bei Neonatorum Während der ersten Lebenstage. W. Gessner.
141 *Plant Dermatitis.—Ueber die Primelkrankheit und andere durch Pflanzen verursachte Hautentzündungen. E. Hoffmann.
142 Classification of Mental Affections.—Moderne Einteilung der Geisteskrankheiten. O. Dornbluth.
143 Inoperable Mastdarm-Karzinom als Geburtshindernis (rectal cancer as obstacle to delivery). Moritz.
144 Sacrifice of Living Child in Favor of Mother.—Ueber die Opferung des lebenden Kindes zu Gunsten der Mutter. O. v. Herff.

137-138. **Cinnamic Acid in Treatment of Tuberculosis.**—Prym reports the results of treatment of 22 cases of tuberculosis according to Landerer's technic. He was impressed with the unmistakably potential action of the hetol on tuberculous processes, but found that this action was not always for the benefit of the subject. Sometimes, in the severer cases, the effect seemed to be injurious. Schrage's experience has been more favorable. He restricted the treatment—according to Landerer's directions—to beginning phthisis: uncomplicated, afebrile cases. He has been applying it during the last four years and asserts that with it the physician is certain to cure a certain proportion of the cases—not all. The effect is soon apparent in the cessation of the night sweats, increase in weight, and in the vanishing of the physical signs of the affection. A dozen cases are described in detail out of his large experience. The formula is: Natrii cinnamylici, 1 part (or 3 to 5 parts); solution natrii chlorati, (.7 per cent.) to 100 parts. For intravenous injections he keeps the syringe and the solution in a small nickelin case in which everything is sterilized by steam generated by an alcohol flame an hour before use.

139. **Marmorek's Antituberculosis Serum.**—Frey has made more than 350 injections of this serum at Davos, his material embracing a dozen cases of tuberculosis. His experience confirms that of others in regard to the harmlessness of the serum. No symptoms of intoxication were observed, while the condition of the patients showed marked improvement. He urges further trials.

141. **Plant Dermatitis.**—Besides the primrose, Hoffmann has observed cases of plant poisoning due to the chrysanthemum,

the poison sumach, fresh squill roots, arbor vitæ and the Japanese lacquer derived from rhus vernicifera. The subjects of these affections never connect them with their contact with the plant—the contact sometimes being of the briefest—and the differential diagnosis is, therefore, at times difficult.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed page 1510.

145 (LII, No. 3.) Uebergang der Toxine von der Mutter auf die Frucht (transmission of toxins from mother to fetus). Schmidlechner.
146 Ueber acutes Oedem der Portio vaginalis in der Gravidität. R. Jolly.
147 *Beitrag zur conservativen Myom-Chirurgie. M. Henkel.
148 Die Scheidencysten in ihrer Beziehung zum Gartner'schen Gange (vaginal cysts). E. Pollak.
149 *Die Tuberculose des graviden und puerperalen Uterus. E. Kraus.
150 Ist eine innere und äussere Ueberwanderung des Eies möglich (migration of ovum)? G. Burckhard.
151 Beitrag zur Mechanik des Tubenverschlusses (obstruction of tube). E. Opitz.
152 Ueber den suprasymphysären Kreuzschnitt nach Küstner (transverse incision). Kraus.
153 Ueber interstitielle Gravidität. P. Bosse.

147. **Conservative Surgery of Myoma.**—Henkel reviews the material, operations and remote results of the myomas observed at the Berlin gynecologic clinic. He adds in conclusion a theory to explain the symptoms observed after hysterectomy. The uterus may produce a substance which acts as a toxin unless neutralized by an antitoxin which is generated in the ovaries. The antitoxin may likewise have a toxic action in case it has none of the toxin to act on, as, for instance, when the ovaries are retained after the uterus has been removed. In regard to the preservation of the menstrual function he believes that it is a welcome feature of conservative surgery, but that it is not its chief purpose. The subjective results of enucleation are much better than those of the radical operations. Drainage is better when the capsule is removed with the tumor. Its removal is required also because additional myoma nuclei have sometimes been discovered in the capsule.

149. **Tuberculosis of Gravid and Puerperal Uterus.**—Kraus states that tuberculosis develops in the pregnant uterus as a chronic endometritis, spreading from the tubes over the surface, or as a miliary infection of the placenta and its point of attachment, the decidua vera persisting intact. No case has yet been recorded in which the miliary infection involved more than the placenta and its attachment. Miliary tuberculosis may develop in the puerperal uterus from some extragenital focus by way of the blood, or may spread from a tuberculous focus in the tubes.

Gazzetta degli Ospedali, Milan.

Last indexed page 1097.

154 (XXV, No. 91.) *Plastic Fixation of Kidney.—Proposta di nefropessi col passaggio atraverso al rene del periostio della 12a costa resecata. C. Mariani.
155 New Instrument for Craniotomy.—Nuovo strumento per la craniotomia ostetrica in sostituzione del cranioclasta di C. Braun. L. Conti.
156 Staining Properties of Red Corpuscles.—Della coloribilita delle emazie col bleu di metilene nelle anemie. A. Germani.
157 (No. 94.) Citologia dell'idrocele volgare. O. Marchetti.
158 *La cura dei Raggi Roentgen nella leucemia. Z. Guerra (Bozzolo's clinic, Turin).
159 (No. 97.) Ricerche sulla produzione di "plasteine" nello stomaco dell' uomo allo stato normale e patologico. E. Tedeschi.
160 *Le iniezioni endovenose di Thymol nel decorso della infezione sperimentale da stafilococci piogene aureo. O. Fiorentini.
161 Intorno all' uso dei preparati di ferro in terapie (iron). P. Marfori.
162 La morfologia del bacillo tubercolare e il suo valore semeiologico. A. Chiesi.
163 (No. 100.) 2 casi di insufficienza delle valvole aortiche in seguito a trauma. C. Trevisanello.
164 Intorno ad una epidemia di meningite cerebro-spinale. A. Perez.
165 4 casi di tetano traumatico curati col methodo Bacelli (intravenous injection of carbolic acid). C. Mastri.
166 Cura chirurgica della peritonite acuta. A. Montini.
167 *Sulla cura della pneumonite lobare acuta e sull'uso della digitale a dosi tossiche. M. Capuano.
168 *Inezioni endo-articolari di salicilato di soda nel reumatismo articolare comune. A. Santini (Siena).
169 (No. 103). Nota cliniche sopra un' epidemia di scarlattina. N. Muglia.
170 Sull' eziologia di pertosse. G. Corsini.
171 Neurosi ed anomalie di sviluppo. C. Ortali.
172 (No. 106.) Cancro primitivo della milza (of spleen). G. Baccelli.
173 Asepsi clinica ed asepsi batteriologica. D. Maragliano.
174 Contributo alla patogenesi ed alla neurastenia osservata in alcuni ammalati di nefroptosi. G. Tussi and Fiori.
175 La diagnosi del dolore (of pain). G. Campanella.
176 Sull' azione delle inezioni di sangue venoso emulgente e di emulsione di parenchima renale negle animali della stessa specie. P. Fiori.
177 I solfati ferroso e manganoso nell' ipodermo-terapia. L. Camurri.
178 Sull incapacita al lavore per ernia. D. Pallgri.
179 (No. 109.) Trattamento operativo dei voluminosi tumori emorroidarli. De Franchis.
180 *Studio sperimentale sulle iniezioni endovenose di sublimato corrosivo come cura nelle infezioni interne dell' occhio. P. Tumminia.
181 *Hot Baths in Neurasthenia.—Il bagno caldo per i nevrastenici. U. Alessi.

154. **Plastic Fixation of Kidney.**—Mariani remarks that the conditions for successful fixation of a wandering kidney are that it should be fastened in its natural position, with some substance not foreign to the body, and not elastic, and that the organ should still have its normal limits of physiologic excursion. He has been trying on animals and on the cadaver a technic which answers these conditions much better than any other proposed to date, in his opinion. He exposes the twelfth rib and isolates it completely. Gauze is then worked under it and its periosteum incised lengthwise and detached from the bone. The rib is then resected about 4 cm. from its articulation. The periosteum rolls up into a large cord as soon as the rib is resected, and this cord of periosteum is drawn through the kidney and sutured to the muscles of the eleventh interspace. Four large dogs operated on by this technic bore the operation well. When killed two months later the kidney was found solidly attached to the cord of periosteum and to the muscles in the interspace; the periosteum was alive and the kidney normal except for a narrow zone around the periosteum in which the tissues appeared a trifle harder than normal. There was not a trace of suppuration past or present nor of bone formation from the periosteum. The desired result had been attained beyond expectation.

158. **Roentgen Treatment of Leukemia.**—See abstract 97, page 1669.

160. **Intravenous Injections of Thymol in Staphylococcus Infection.**—The results of Fiorentini's experimental research are tabulated and demonstrate that thymol administered by intravenous injection seems to display an almost specific action against infection with the staphylococcus aureus. In the proportion of 10 cg. per kilogram it modifies and even arrests the progress of staphylococcus infection. It evidently does not destroy the cocci, but attenuates them to such an extent as to render them harmless. It is a substance not modified by the organic fluids and retains its specific action in the blood, where it induces a pronounced defensive reaction, causing hyperleucocytosis with polynucleosis. It shares with bichlorid this leucocytogenic property, but possesses it to a greater degree than the latter.

167. **Treatment of Pneumonia with Large Doses of Digitalis.**—Capuano reviews the history of this method of treating pneumonia and its mechanism, citing his own experiences. He has had occasion to treat 36 cases of lobar pneumonia during the last year and has given digitalis in all, according to age; the dose is from 4 to 5 grams for an adult. This was repeated for four or five successive days, and no signs of intolerance were apparent in any instance. By the second or third dose the temperature fell, the respiration became less rapid and the pulse subsided from 120 or 150 to 100, 90, or even less. When the pulse keeps high for forty-eight hours under these doses of digitalis the patient is inevitably doomed. This occurred in 3 cases in his series. The others promptly recovered, the crisis coming on by the fourth to sixth day. He explains the action of digitalis in these large doses as due to the hyperleucocytosis which it induces. All but a few of his patients were between 6 and 60 years old, the others still older.

168. **Intra-Articular Injections of Salicylates in Rheumatic Joints.**—Santini has followed Bouchard's method of treating rebellious articular rheumatism by injecting a 3 per cent. solution of sodium salicylate around the joint or joints most affected. He found it remarkably effectual, but discovered that the same or better results could be accomplished by injecting the fluid directly into the joint. He has treated 30 cases of articular rheumatism in this way and is enthusiastic in regard

to the numerous advantages and the harmlessness of this technic, if the usual aseptic precautions are adopted. In a number of cases the entire disease was arrested by this local treatment; in others it was attenuated and the most serious manifestations relieved. In case there is much effusion in the joint he aspirates a little before injecting the salicylate. The existing pain is usually relieved almost at once, the fever drops and the disease is aborted. The intra-articular injections did not display any efficacy in a couple of cases of tuberculous pseudo-rheumatism or gonorrheal arthritis. The literature on the subject and the history of these local measures are summarized, with theories to explain their action. He regards this application of the salicylates to combat the process where it is localized as a great advance in therapeusis, in cases rebellious to internal medication or as an adjuvant.

180. **Bichlorid Intravenously in Ocular Affections.**—Two years of research on more than a hundred rabbits have demonstrated that intravenous injection of corrosive sublimate has an unmistakable but moderate action in arresting or retarding an infectious process in the depths of the eye in the large majority of cases, both acute and chronic. The objections to this mode of treatment, however, and its occasional failures should cause it to be reserved for a last resort. Tumminia's experiments included tuberculosis and other infections.

181. **Hot Baths in Neurasthenia.**—Alessi noticed that his neurasthenic patients were much less irritable during the summer than in the winter, and felt better generally. This fact, in connection with others which he cites, suggested the propriety of stimulating the more sluggish metabolism during the winter by means of hot baths. He has found them of the greatest value for this purpose during the cold months. The bath is taken in the morning, the temperature of the water is as warm as is most agreeable to the subject, and he remains in it for forty minutes. He finds afterward that he is far less nervous and irritable and that he gets through the day comparatively without fatigue. Alessi ordered the baths merely to combat the symptom of irritability, and supplemented them by the ordinary measures.

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182 (XX, No. 39.) •Il tachiolo nell' antisepsi gastrica (silver fluorid). L. Ferrannini.
183 Curettement of the Bladder.—Sul raschiamento della vesica. D. S. Rolando.
184 Avvelenamento acuto per sublimato corrosivo. A. Rossi.
185 (No. 40.) Sulla stafilolisina. R. Caminiti.
186 •La cura della tubercolosi cutanea desunta dai nuovi metodi di cura e dalla mia osservazione. R. Campana.
187 La sterilizzazione del catgut col metode del claudius nella pratica chirurgica. A. Cernezzi.
188 •Collapse of Veins in Relation to Pressure in Right Auricle.—Sul colasso delle vene in rapporto con la pressione nell atrio destro. A. Abbruzzetti. (Commenced in No. 35.)
189 (No. 41.) Sulle alterazioni cadaveriche degli elementi del timo (thymus). D. Salvatore.
190 La malaria in Italia durante il 1903. A. Celli. Abstract.
191 La sieroreazione nella tubercolosi. G. Marini. Abstract.
192 (No. 42.) Saline Infusion in Nephritis.—Gli effetti delle ipodermoclisi clorurate nelle nefriti in rapporto alle moderne teorie sull 'azione della clorurazione nelle malattie renali. L. Ferrannini.
193 Le precipitine nel siero di sangue normale. G. Q. Ruata.
194 Sulla tubercolosi del cieco e dell' appendice vermiforme. N. Palermo. (Commenced in No. 41.)
195 Alterazioni dei muscoli intercostali nelle malattie della pleura. B. Pernice.
196 Per la diagnosi del sarcoma delle ghiandule retroperitoneali (glands). Crispolti. Abstract.

182. **Silver Fluorid in Stomach Affections.**—Among all the silver salts the Italians prefer silver fluorid, which Paterno prepares in a durable 10 per cent. aqueous solution. Durante reported its powerful antiseptic properties in 1902, and since then a number of Italians have used it for various therapeutic purposes. Ferranini has been making a study of the drug's action on the stomach, testing it on dogs with Pawlow fistulas and on other animals. He claims that his experiences have fully confirmed its power as an antiseptic and against fermentations, while it possesses the property of stimulating the motor function of the stomach, and slightly enhancing the proteolytic and coagulating power of the gastric juice. It also modifies the stomach lining, similar to the action of the silver salts in general. This will be found a valuable aid in the treatment of chronic gastritis. He concludes that this drug in a 1 to 3,000 or 5,000 solution, is one of the best antiseptics and antifermentation agents known, whether used for lavage of the stomach or administered internally. He tabulates the findings of his various experimental tests *in vitro* and on animals.

186. **Treatment of Cutaneous Tuberculosis.**—Campana thinks that cutaneous tuberculosis should be treated by local excision or cauterization, that absorption should be promoted by administration of tuberculin according to the latest and most approved methods, and complications avoided by protecting the parts from septic invasion. He is convinced that the so-called recurrences are due to septic invasion of the part which thus invites renewed infection or arouses a latent one. The thorax should be immobilized to aid in the recuperating processes; and the excursions of the thorax should not be disturbed by use of the voice. Cold applications should also be made to the surface of the thorax on the affected side and the mouth should be kept in the nearest approach to asepsis that is possible. Another measure is to have the patient breathe in an atmosphere impregnated with a medicinal spray. The intervals between the use of the tuberculin should be fifteen days at least. This allows time for the action of the tuberculin to be felt without disturbing the general health by its continuous administration. Given in this way it aids in the resolution of the inflammatory process, reduces the tendency of the tuberculous process to spread, and induces a slight degree of local immunity in the vicinity.

188. **Collapse of Veins as Sign of Pressure in Right Auricle.**—Abbruzzetti has been making a very thorough study of Gaertner's test of the pressure in the right auricle described in THE JOURNAL, xlii, page 687. He tested it on healthy subjects and under the influence of chloroform, alcohol, etc., as well as in a large number of diseases. His conclusions are that although it may serve in certain cases to determine the approximative value of the pressure in the right auricle, yet it is scarcely able to reveal chronic affections not appreciable by other means, and is of no use for the early diagnosis of disturbances in the heart and lungs. It may serve occasionally as an aid in the prognosis, but not when toxic phenomena predominate.

NEW PATENTS.

Recent patents of interest to physicians:

772707. Drop stopper for bottles or the like. Martin Elfstrand, Upsala, Sweden.
772802. Atomizer. George F. Hawley, Chicago.
772359. Fumigating device. John Hurley, Little Falls, N. Y.
772806. Combined support for garments and catamenial sacks. Elizabeth H. Johnson, Clayton, N. C.
772466. Vaporizer. James M. Lockey, Faulkton, S. D.
772664. Truss. Frank L. Molyneux, Painesville, Ohio.
772666 Roentgen tube. Carl H. F. Muller, Hamburg, Germany.
772667. X-ray tube. Carl H. F. Muller, Hamburg, Germany.
772438. Vibrator. Charles F. Splitdorf, New York.
772450 Aseptic syringe. Herman A. Wulfing-Luer, Paris, France.
773274. Stethoscopic instrument. Robert C. M. Bowles, Brookline, Mass.
773281. Container for radium and allied compounds. W. E. Everette, Tacoma, Wash.
773145 Fumigator. Bertram K. Hollister, Chicago.
772948 Invalid bed and lifter. Lewis C. Martin, London, Tenn.
772959. Medical battery. Leon W. Pullen, Philadelphia.
773529 Carbon analysis. George O. Seward, Holcombs Rock, Va.
772993. Pocket fumigator. Frank E. Wolcott, Indianapolis, Ind.
774075 Apparatus for generating steam for medicinal purposes. Max F. Hentschel, Leisnig, Germany.
773574. Measuring bottle. Stanley Kossowski, Chicago.
773827 and 774118. Roentgen ray tube. Elihu Thompson, Swampscott, Mass.
773828. Curative apparatus. John Titus, Oyster Bay, and W. Titus, Old Westbury, N. Y.
774151 Continuously producing and rectifying chloral. Jules A. Besson, Caen, France.
774378. Machine for decapping, filling and recapping capsules. Alvin K. Carter, Syracuse, N. Y.
774572. Hygienic night stand. Narcisse Faucon, Dijon, France.
774317 Corn or bunion shield. Isaac A. George, Hastings, Neb.
774386. Vaginal syringe. Elmer E. Hall, Chicago.
774191. Clip for catamenial belts. Arthur E. Luzzi, New York.
774529. Electrothermic and vacuum appliance. Charles C. F. Nieschang, Fort Wayne, Ind.
774282. Ear phone. Douglas E. Smith, New York.
775105. Electric baker for surgical purposes. Walter S. Edmands, Newton, and C. A. Hoyt, Boston.
775214. Flexible water bottle or pad. Wm. A. Galloway, Xenia, O.
774948. Sterilizing Apparatus. Milo B. Perry, Chicago.
774779. Aseptic cartridge, etc. Wm. E. Ranz, Youngstown, O.
775288. Suspensory. James C. Riley, Los Angeles, Cal.
37227. Design, water bag. Anton C. Eggers, New York.